

**Report Number: 214-TRC-03-012**

**Safety Compliance Testing For FMVSS 214**

**Side Impact Protection**

**Indicant**

**Toyota Motor Corporation**

**2004 Lexus RX330 MPV**

**NHTSA Number: C45101**

**Transportation Research Center Inc.**

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**East Liberty, OH 43319**



**Test Date: September 24, 2003**

**Final Report: October 7, 2003**

**U. S. Department Of Transportation  
National Highway Traffic Safety Administration  
Enforcement**

**Office of Vehicle Safety Compliance**

**400 Seventh Street, S. W.**

**Room No. 6111 (NVS-220)**

**Washington, DC 20590**

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16. Abstract <p>This 56/28 km/h 90° Impact (Moving Deformable Barrier) Compliance Test was conducted on the subject vehicle, a 2004 Lexus RX330 MPV in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-214D-06 (except the test was conducted 8 km/h (5 mph) faster than the standard specifies) to determine FMVSS 214 Side Impact Protection compliance. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on September 24, 2003.</p> <p>The impact velocity of the Moving Deformable Barrier (MDB) was 62.0 km/h, and the ambient temperature at the struck (Driver's side) side of the target vehicle at the time of impact was 21° C. The target vehicle's post-test maximum crush was 296 mm at Level 3.</p> <p>The test or target vehicle's performance is given below (with FIR filter):</p> <table border="1"> <thead> <tr> <th></th> <th>Front SID HII</th> <th></th> <th>Rear SID HII</th> <th></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib Acceleration:</td> <td>27.2</td> <td>g's</td> <td>58.2</td> <td>g's</td> </tr> <tr> <td>Left Lower Rib Acceleration:</td> <td>31.4</td> <td>g's</td> <td>53.9</td> <td>g's</td> </tr> <tr> <td>Lower Spine Acceleration:</td> <td>28.4</td> <td>g's</td> <td>45.5</td> <td>g's</td> </tr> <tr> <td>Thoracic Trauma Index, (TTI):</td> <td>29.9</td> <td>g's</td> <td>51.9</td> <td>g's</td> </tr> <tr> <td>Pelvis Acceleration (PEV):</td> <td>45.6</td> <td>g's</td> <td>66.9</td> <td>g's</td> </tr> </tbody> </table> <p>The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during side impact event.</p>					Front SID HII		Rear SID HII		Left Upper Rib Acceleration:	27.2	g's	58.2	g's	Left Lower Rib Acceleration:	31.4	g's	53.9	g's	Lower Spine Acceleration:	28.4	g's	45.5	g's	Thoracic Trauma Index, (TTI):	29.9	g's	51.9	g's	Pelvis Acceleration (PEV):	45.6	g's	66.9	g's
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## Section I

### Purpose and Test Procedure

This side impact test is part of the FMVSS 214 Side Impact Protection Compliance Test Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-02-D-11114. The purpose of this test was to evaluate side impact protection in a 2004 Lexus RX330 MPV. The test was conducted in accordance with the Office of Vehicle Safety Compliance's Laboratory Test Procedure (TP-214D-06, dated July 2001) (except the test was conducted 8 km/h (5 mph) faster than the standard specifies).

## Section 2

### Summary of Side Impact Test

A 2004 Lexus RX330 MPV was impacted on the driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the monorail at a velocity of 62.0 km/h (38.5 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, Ohio on September 24, 2003. Pre-test and post-test photographs of the test vehicle, the moving deformable barrier (MDB), and the side impact dummies (SID HIII) are included in Appendix A.

Two restrained Side Impact Dummies (SID HIII) were placed in the driver (Pos. #1) and left rear (Pos. #4) designated seating positions according to the instructions specified in the OVSC Side Impact Laboratory Test Procedure (TP-214D-06, dated July 2001). Both SID HIII dummies were certified prior to this test. The side impact test was documented by one real-time camera and 9 high-speed cameras. Camera locations and other pertinent camera information are included in this report.

The SID HIII were instrumented with the following accelerometers:

1. Head (HEAD) triaxial and redundant accelerometers (X, Y, and Z-directions)
2. Neck (NEK) triaxial force and moment load cells (X, Y, and Z-directions)
3. Left Upper Rib (LUR) uniaxial and redundant accelerometer (Y-direction)
4. Left Lower Rib (LLR) uniaxial and redundant accelerometer (Y-direction)
5. Lower Thoracic Spine (T<sub>12</sub>) uniaxial and redundant accelerometer (Y-direction)
6. Pelvic (PEV) section uniaxial and redundant accelerometer (Y-direction)

A summary of the side impact dummy (SID HIII) configuration and verification test data can be found in Appendix C. A total of seventy-two (72) channels of data were recorded. Appendix B contains the vehicle, MDB, and dummy response data traces.

The following tables summarize the results of the test:

Injury Criteria	Front SID HIII	Rear SID HIII
TTI (g)	29.9	51.9
PEV (g)	45.6	66.9

#### Head Injury Criteria (HIC)

Injury Criteria	Front SID HIII	Rear SID HIII
HIC	87	301
$t_1$ (ms)	44.40	53.04
$t_2$ (ms)	76.72	73.28
Average Acceleration $t_1 - t_2$ (g)	23.6	46.6

HIC is as defined in FMVSS 208. The maximum time interval  $t_1$  to  $t_2$  is 36 ms.

#### Neck Injury Criteria

Maximum Values	Front SID HIII	Rear SID HIII
Neck X-axis Force (N)	-243	364
Neck Y-axis Force (N)	-193	-714
Neck Z-axis Force (N)	973	-798
Moment About X-axis (Nm) <sup>1</sup>	-43.5	-88.1
Moment About Y-axis (Nm)	-39.0	-35.3
Moment About Z-axis (Nm)	22.7	18.9

<sup>1</sup> Calculated about the occipital condyle with the following formula:  $M_{occ} = M_x + 0.01778F_y$ .

### Data Acquisition Explanations

The vehicle's left side sill at front seat Y-axis acceleration channel, LFSYG1, exceeded full-scale at approximately 15 milliseconds and recorded no useful data afterwards. The calculated left side sill at front seat velocity, displacement, and resultant were also affected.

The vehicle's right side sill at front seat X-axis acceleration channel, RFSXG1, recorded no useful data after approximately 16 milliseconds. The calculated right side sill at front seat velocity was also affected.

Section 3

Summary of Test Results

Data Sheet 1

General Test Vehicle Parameter Data

Test Vehicle Information:

Vehicle Year/Make/Model: 2004 Lexus RX330  
Vehicle Body Style/Color: MPV/Breakwater Blue Metallic VIN: JTJGA31U940011659  
Vehicle NHTSA No.: C45101 Build Date: 06/03  
Engine Data: 6 Cylinders;        CID; 3.3 Liters;        cc  
Placement: - Longitudinal; or X Lateral; or - Horizontal  
Transmission: 5 Speed; - Manual; X Automatic; - Overdrive  
Final Drive: - RWD; X FWD; - Four-Wheel Drive  
Odometer Reading: 151 mi (243 km)  
Options: X A/C; X Power steering; X Pwr. brakes; X Power windows

Data From Vehicle's Tire Placard:

Tire Pressure (at capacity)\* 210 kPa Front; 210 kPa Rear  
Recommended Tire Size: 225/65R17  
Tires on Test Vehicle: P225/65R17 Manufacturer: Michelin, Energy

Vehicle Capacity Data:

Number of Occupants: 2 Front; 3 Rear; N/A 3rd seat; 5 Total  
Type of Front Seats: X Bucket; - Bench; - Split bench  
Type of Front Seat Back: - Fixed; X Adjustable with - Lever or X Knob  
Vehicle Max. Capacity Loading = 420 kg (A)  
No. of Occupants x 68.04 kg. = 340 kg (B)  
Vehicle Cargo Capacity (A-B) = 80 kg

Test Vehicle Delivered Weight With Maximum Fluids:

Left Front	=	<u>534.5</u> kg	Left Rear	=	<u>356.0</u> kg
Right Front	=	<u>484.5</u> kg	Right Rear	=	<u>366.0</u> kg
Total Front	=	<u>1019.0</u> kg	Total Rear	=	<u>722.0</u> kg
Front % of Total Weight	=	<u>58.5</u> %	Rear % of Total Weight	=	<u>41.5</u> %
Total Weight	=	<u>1741.0</u> kg			

\* Tire pressure used in test.

Data Sheet 1 (continued)

General Test Vehicle Parameter Data

Calculation Of Vehicle's Target Test Weight:

Total Test Vehicle Delivered Weight With Max. Fluids = 1741 kg (A)  
Maximum Cargo Carrying Capacity of Test Vehicle = 80 kg (B)  
Weight of Instrumented Side Impact Dummies (2 X 84.0 kg) = 168 kg (C)  
Test Vehicle Target Weight: = 1989 kg (A+B-C)

Fully Loaded Test Vehicle (UDW + 2 SID IIII s + Cargo):

Left Front	=	<u>584.5</u> kg	Left Rear	=	<u>474.5</u> kg
Right Front	=	<u>486.5</u> kg	Right Rear	=	<u>440.0</u> kg
Total Front	=	<u>1071.0</u> kg	Total Rear	=	<u>914.5</u> kg
Front % of Total Weight	=	<u>53.9</u> %	Rear % of Total Weight	=	<u>46.1</u> %
Total Weight	=	<u>1985.5</u> kg			

As Tested Weight of Test Vehicle (2 SID IIII s + Cargo + Equipment & Instrumentation):

Left Front	=	<u>572.6</u> kg	Left Rear	=	<u>463.5</u> kg
Right Front	=	<u>512.4</u> kg	Right Rear	=	<u>433.0</u> kg
Total Front	=	<u>1085.0</u> kg	Total Rear	=	<u>896.5</u> kg
Front % of Total Weight	=	<u>54.8</u> %	Rear % of Total Weight	=	<u>45.2</u> %
Total Weight	=	<u>1981.5</u> kg			

Test Vehicle Attitude (all dimensions in millimeters):

As Delivered	Fully Loaded	Ready For Test
Right Front <u>828</u>	Right Front <u>817</u>	Right Front <u>818</u>
Left Front <u>820</u>	Left Front <u>808</u>	Left Front <u>810</u>
Right Rear <u>819</u>	Right Rear <u>785</u>	Right Rear <u>792</u>
Left Rear <u>816</u>	Left Rear <u>775</u>	Left Rear <u>781</u>

Test Vehicle Wheelbase: 2715 mm

C.G. = 1227 mm rearward of front wheel centerline

Total Vehicle Length:

Right Side = 4448 mm  
Left Side = 4450 mm  
Centerline = 4725 mm

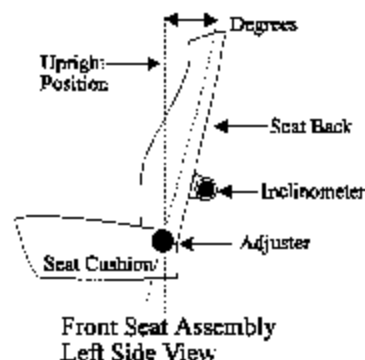
Data Sheet 1 (continued)

General Test Vehicle Parameter Data

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101

Nominal Design Riding Position for adjustable driver and passenger seat backs. Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent, if applicable.



Front Seat Cushion Placement: Mid; 4.7" rearward from the foremost position

Total Length of Fore/Aft Adjustment Travel: 240 mm

Total Number of Adjustment Positions or Detents: N/A

Front Seat Back Adjustment Position: The seat back was adjusted to 87° measured at the headrest bar line

Seat Back Torso Angle: 3.3 degrees

Second Position Seat Placement: Mid; 4 notches rearward from foremost position

Total Length Of Fore/Aft Adjustment Travel: 124 mm

Seat Back Adjustment Position: The seat back was adjusted to 2 notches rearward from the most upright position

Adjustable Steering Column Position: 4 notches downward from the most upright position

Window Positions:

Right Front: Open

Right Rear: Open

Left Front: Closed

Left Rear: Closed

Note: Windows will be in closed position on struck side of test vehicle and in open position on opposite side.

Amount of Stoddard Solvent In Fuel Tank:

72.5 liters (fuel tank usable capacity)

67.6 liters used in test (92% - 94% of fuel tank usable capacity)

Location of Impact Point On Test Vehicle Side To Be Impacted:

Wheelbase = 2715 millimeters

Intended impact point is 417 millimeters rearward of front axle centerline  
(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 438 millimeters rearward of front axle centerline



Data Sheet 2

Test Vehicle Summary of Results

Vehicle Year/Make/Model: 2004/Lexus/RX330

Body Style: MPV

VIN: JTJGA31U940011659

NHTSA No.: C45101

Build Date: 06/03

Test Date: 09/24/03

Vehicle Overall Length = 4725 mm

Overall Width = 1820 mm

Vehicle Test Weight (Pre-Test):

Left Front	=	<u>572.6</u>	kg	Left Rear	=	<u>463.5</u>	kg
Right Front	=	<u>512.4</u>	kg	Right Rear	=	<u>433.0</u>	kg
Total Front	=	<u>1085.0</u>	kg	Total Rear	=	<u>896.5</u>	kg
Total Weight	=	<u>1981.5</u>	kg				
Wheelbase	=	<u>2715</u>	mm				

Longitudinal C.G. From Center Of Front Axle = 1227 mm

Impact Angle With Respect To Impactor = 90 degrees

Impact Point:

Actual Impact Point is 21 mm right of nominal impact ref. line (Lateral)

Actual Impact Point is 0 mm from nominal impact point (Vertical)

Maximum Exterior Static Crush:

1. Level 1 (	<u>340</u>	mm above ground) =	<u>85</u>	mm
2. Level 2 (	<u>711</u>	mm above ground) =	<u>290</u>	mm
3. Level 3 (	<u>750</u>	mm above ground) =	<u>296</u>	mm
4. Level 4 (	<u>1080</u>	mm above ground) =	<u>193</u>	mm
5. Level 5 (	<u>1630</u>	mm above ground) =	<u>33</u>	mm

Maximum Post-Test Intrusion = 296 mm

Occupants:

Front Passenger

Rear Passenger

Dummy Identification 055 906

Restraints Used 3-pt. seat belt, side curtain airbag, 3-pt. seat belt, side curtain airbag  
side torso airbag

Instrumentation:

Number of Vehicle Data Channels: - 21

Number of Cameras: Onboard = 3 Offboard = 8 Total = 11

Data Sheet 3

Moving Deformable Barrier(MDB) Summary

MDB Face Manufacturer And Serial Number:

Plascore, 033A0303 024A0403

Position Of Impactor (MDB) On Monorail:

Crabbed 27° to the left

MDB Specifications:

Overall Width of Framework Carriage	=	<u>1251</u>	mm
Overall Length of MDB (Incl. honeycomb impact face)	=	<u>4014</u>	mm
Wheelbase of Framework Carriage	=	<u>2591</u>	mm
Track of Framework Carriage (Front & Rear)	=	<u>1881</u>	mm
C.G. Location Rearward of Front Axle	=	<u>1138</u>	mm

MDB Weight:

Left Front	=	<u>419.6</u>	kg	Left Rear	=	<u>254.4</u>	kg
Right Front	=	<u>342.2</u>	kg	Right Rear	=	<u>342.6</u>	kg
Total Front	=	<u>761.8</u>	kg	Total Rear	=	<u>597.0</u>	kg
Total MDB Weight	=	<u>1358.8</u>	kg				

Impact Angle (MDB C/L to Target Vehicle C/L) = 90 degrees

Impact Speed - 62.0 km/h

Maximum Static Crush of Honeycomb Impact Face:

1. Row A at Center of Bumper Level	=	<u>161</u>	millimeters
2. Row B at Top of Bumper Level	=	<u>82</u>	millimeters
3. Row C at Mid Level <sup>1</sup>	=	<u>107</u>	millimeters
4. Row D at Top of Stack Level	=	<u>137</u>	millimeters

Instrumentation:

Number of MDB Data Channels = 5

<sup>1</sup> Row C at Mid Level pre-test measurements were not collected prior to impact. Pre-test measurements from a second barrier face were used to determine difference.

Data Sheet 4

Post-Test Observations

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101

Visible Dummy Contact Points:

	<u>Left Front SID HIII</u>	<u>Left Rear SID HIII</u>
Head:	<u>Airbag, head restraint</u>	<u>Airbag, head liner</u>
Upper Torso:	<u>Torso airbag</u>	<u>Door panel</u>
Lower Torso:	<u>None</u>	<u>None</u>
Left Knee:	<u>Door panel</u>	<u>Door panel</u>
Right Knee:	<u>None</u>	<u>None</u>

Door Opening:

	<u>Left Side</u>	<u>Right Side</u>
Front:	<u>Jammed and latched</u>	<u>Easy</u>
Rear:	<u>Jammed and latched</u>	<u>Easy</u>

MDB Distance From Target Impact Point:

Vertical: 0 mm from target

Horizontal: 21 mm right from target

Arm Rest Locations:

Front: 240 mm below the bottom of the window

Rear: 273 mm below the bottom of the window

Seat Movement:

Front: None

Rear: None

Glazing Damage:

Windshield: \_\_\_\_\_

Window: Left rear window broken

Pillar Separation: None

Sill Separation: None

Other Notable Impact Effects:

None

Section 4

Occupant and Vehicle Information

Data Sheet 5

SID III Instrumentation Data

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101

TEST NUMBER: 030924

DRIVER DUMMY SERIAL NUMBER: 055

POSITIVE  
DIRECTION

NEGATIVE  
DIRECTION

HEAD ACCELERATION

LONGITUDINAL	2.7 g	@ 205.6 ms	16.4 g	@ 62.6 ms
LATERAL	29.0 g	@ 57.0 ms	3.4 g	@ 105.6 ms
VERTICAL	10.6 g	@ 57.4 ms	5.5 g	@ 65.7 ms
RESULTANT	33.5 g	@ 57.4 ms		
HIC	87 from 44.4 to 76.7 ms			

HEAD REDUNDANT ACCELERATION

LONGITUDINAL	2.8 g	@ 206.6 ms	16.3 g	@ 62.6 ms
LATERAL	29.4 g	@ 57.0 ms	3.4 g	@ 102.2 ms
VERTICAL	10.4 g	@ 57.4 ms	5.5 g	@ 65.8 ms
RESULTANT	33.6 g	@ 57.4 ms		
HIC	88 from 44.6 to 76.7 ms			

NECK FORCE

X-AXIS SHEAR	87.3 N	@ 39.7 ms	243.2 N	@ 63.2 ms
Y-AXIS SHEAR	157.8 N	@ 62.6 ms	192.5 N	@ 94.7 ms
Z-AXIS AXIAL	973.5 N	@ 57.2 ms	91.7 N	@ 115.4 ms

NECK MOMENT

ABOUT X-AXIS	9.6 N-m	@ 151.6 ms	45.9 N-m	@ 57.9 ms
ABOUT Y-AXIS	6.9 N-m	@ 139.6 ms	39.0 N-m	@ 63.1 ms
ABOUT Z-AXIS	22.7 N-m	@ 82.2 ms	6.4 N-m	@ 297.3 ms
OCCIPITAL COND	10.6 N-m	@ 151.7 ms	43.5 N-m	@ 57.8 ms

LEFT UPPER RIB ACCELERATION

LATERAL (P)	27.2 g	@ 53.7 ms	7.3 g	@ 40.0 ms
LATERAL (R)	27.0 g	@ 53.7 ms	7.2 g	@ 40.0 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	31.4 g	@ 16.9 ms	4.9 g	@ 78.1 ms
LATERAL (R)	31.3 g	@ 16.9 ms	5.1 g	@ 78.1 ms
TTI d (P)	29.9			
TTI d (R)	29.5			

LOWER SPINE ACCELERATION

LATERAL (P)	28.4 g	@ 43.8 ms	9.3 g	@ 57.5 ms
LATERAL (R)	27.7 g	@ 43.8 ms	5.1 g	@ 58.1 ms

PELVIS ACCELERATION

LATERAL (P)	45.6 g	@ 35.0 ms	13.7 g	@ 62.5 ms
LATERAL (R)	45.6 g	@ 35.0 ms	13.7 g	@ 62.5 ms

POSITIVE DIRECTION

LONGITUDINAL: FORWARD  
LATERAL: RIGHTWARD  
VERTICAL: DOWNWARD

NEGATIVE DIRECTION

LONGITUDINAL: REARWARD  
LATERAL: LEFTWARD  
VERTICAL: UPWARD

Data Sheet 5 (Continued)

SID HII Instrumentation Data

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101

TEST NUMBER: 030924

PASSENGER DUMMY SERIAL NUMBER: 906

POSITIVE  
DIRECTION

NEGATIVE  
DIRECTION

HEAD ACCELERATION

LONGITUDINAL	8.0 g	@ 203.9 ms	10.3 g	@ 70.9 ms
LATERAL	46.5 g	@ 66.1 ms	7.1 g	@ 88.6 ms
VERTICAL	16.8 g	@ 43.6 ms	39.2 g	@ 64.1 ms
RESULTANT	60.8 g	@ 64.0 ms		
HIC	301 from 53.0 to 73.3 ms			

HEAD REDUNDANT ACCELERATION

LONGITUDINAL	8.1 g	@ 206.2 ms	9.3 g	@ 71.2 ms
LATERAL	48.2 g	@ 65.7 ms	6.9 g	@ 88.2 ms
VERTICAL	16.2 g	@ 43.6 ms	38.9 g	@ 64.4 ms
RESULTANT	61.1 g	@ 64.3 ms		
HIC	310 from 53.3 to 73.1 ms			

NECK FORCE

X-AXIS SHEAR	364.3 N	@ 83.3 ms	123.1 N	@ 149.5 ms
Y-AXIS SHEAR	145.9 N	@ 153.3 ms	713.7 N	@ 80.3 ms
Z-AXIS AXIAL	682.4 N	@ 43.7 ms	798.4 N	@ 63.8 ms

NECK MOMENT

ABOUT X-AXIS	14.6 N-m	@ 83.3 ms	86.3 N-m	@ 61.4 ms
ABOUT Y-AXIS	12.2 N-m	@ 112.3 ms	35.3 N-m	@ 69.2 ms
ABOUT Z-AXIS	18.9 N-m	@ 82.5 ms	8.5 N-m	@ 243.4 ms
OCCIPITAL COND	15.4 N-m	@ 159.2 ms	88.1 N-m	@ 60.6 ms

LEFT UPPER RIB ACCELERATION

LATERAL (P)	58.2 g	@ 51.3 ms	4.0 g	@ 112.5 ms
LATERAL (R)	57.1 g	@ 51.3 ms	4.3 g	@ 112.5 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	53.9 g	@ 50.0 ms	6.0 g	@ 76.9 ms
LATERAL (R)	52.5 g	@ 50.0 ms	5.8 g	@ 112.5 ms
TTI d (P)	51.9			
TTI d (R)	51.1			

LOWER SPINE ACCELERATION

LATERAL (P)	45.5 g	@ 40.6 ms	5.0 g	@ 73.1 ms
LATERAL (R)	45.0 g	@ 40.6 ms	4.8 g	@ 72.5 ms

PELVIS ACCELERATION

LATERAL (P)	66.9 g	@ 38.8 ms	13.9 g	@ 60.0 ms
LATERAL (R)	67.1 g	@ 38.8 ms	13.8 g	@ 60.0 ms

POSITIVE DIRECTION

LONGITUDINAL: FORWARD  
LATERAL: RIGHTWARD  
VERTICAL: DOWNWARD

NEGATIVE DIRECTION

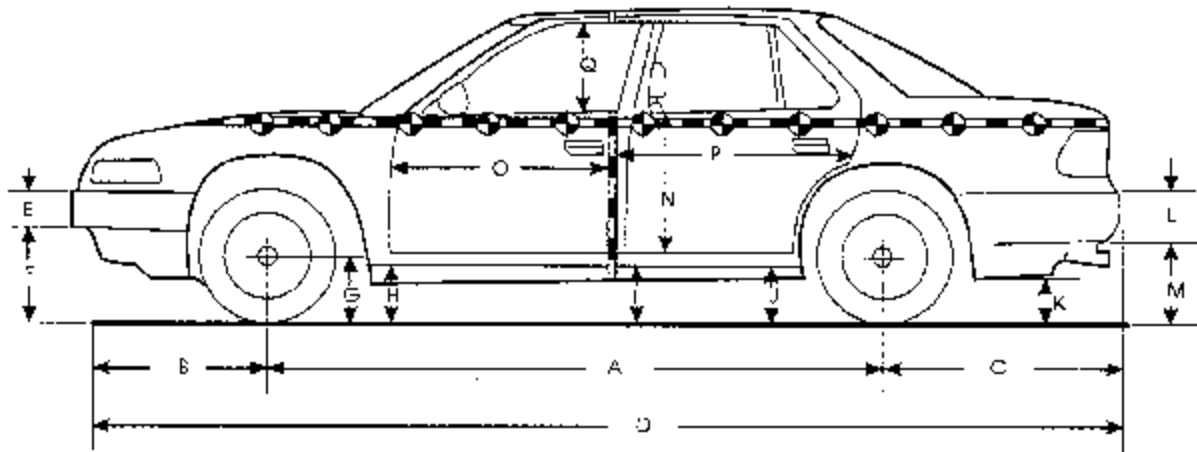
LONGITUDINAL: REARWARD  
LATERAL: LEFTWARD  
VERTICAL: UPWARD

# Data Sheet 6

## Vehicle Pre-Test And Post-Test Measurements

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101



Left Side View

Note: All dimensions are in millimeters with tolerance of  $\pm 3$  mm

	Pre-Test (as delivered)	Pre-Test (as tested)	Post-Test (as tested)	Change
A	2715	2715	2700	15
B	970	970	970	0
C	1040	1040	1040	0
D	4725	4725	4726	-1
E	185	185	185	0
F	502	504	530	-26
G	340	340	340	0
H	305	330	383	-53
I	325	326	392	-66
J1	270	240	257	-17
J2	290	290	362	-72
K	360	328	319	9
L	310	310	310	0
M	420	385	378	7
N	835	835	755	80
O	784	784	730	54
P	1366	1366	1300	66
Q	460	460	460	0
R	4448	4448	4433	15
S	4450	4450	4392	58
T	1405	1405	1275	130

D = Length at centerline  
T = Width at B-pillar

E&L = Bumper Thickness  
J1 = To Pinch Weld

R = Right Side Length  
J2 = To Sill

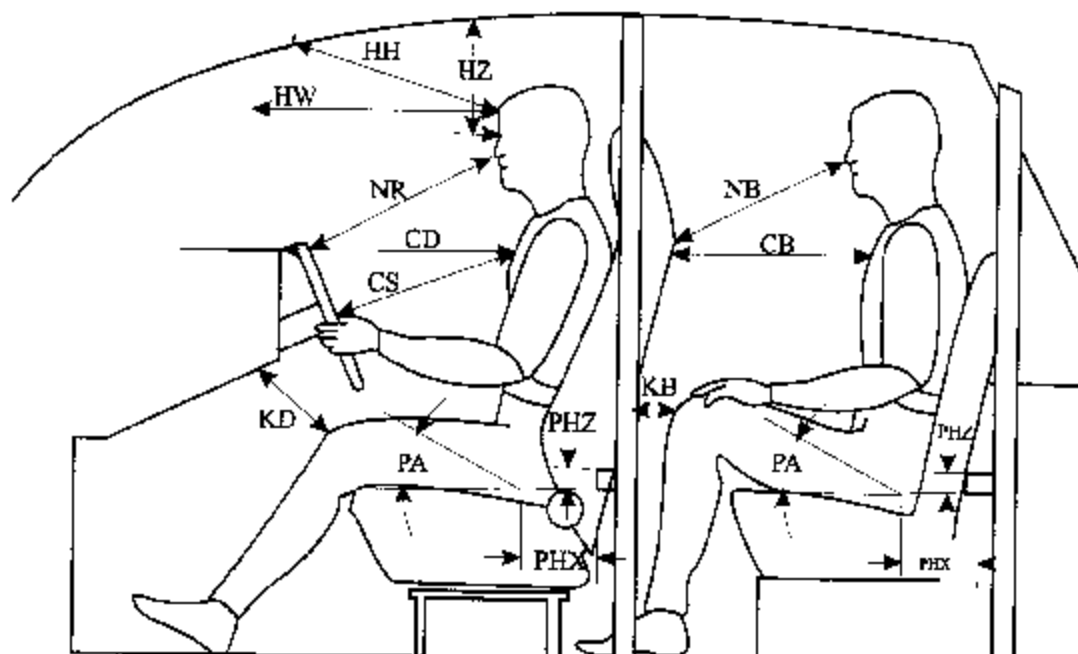
S = Left Side Length

# Data Sheet 7

## SID HIII Longitudinal Clearance Dimensions

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101



Left Side View

Note: All measurements are in millimeters with tolerance of  $\pm 3$  mm

Measurement	Driver SID HIII # 055	Left Rear Pass. SID HIII # 906
HH	473	N/A
HW	718	N/A
HZ	190	195
NR/NB	508	663
CD/CB	603	542
CS	361	N/A
KDL(KDA°)/KBL(KBA°)	90/(66.6°)	163/(89.9°)
KDR(KDA°)/KBR(KBA°)	73/(53.0°)	173/(86.7°)
PA°	23.3°	24°
PHX	212	348
PHZ	245	342

Note: 2-door vehicle shown. Rear dummy PHX and PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.

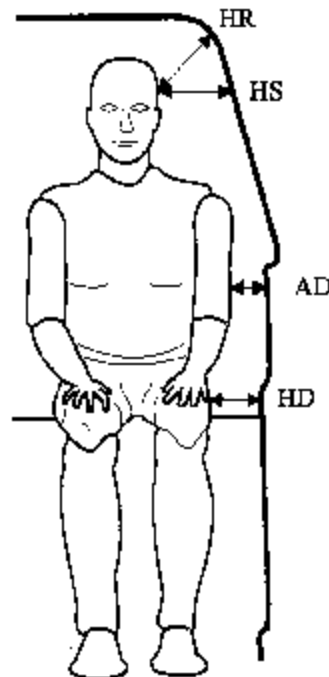


Data Sheet 8

SID HIII Lateral Clearance Dimensions

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101



Note: All measurements are in millimeters with tolerance of  $\pm 3$  mm.

Measurement	Driver SID HIII # 55	Left Rear Pass. SID HIII # 906
HR	190	215
HS	296	334
AD*	Lower: 119      Upper: 96	Lower: 123      Upper: 101
HD	167	138

\* Lower measurement is taken laterally at center of the lower rib accelerometer height from the SID HIII arm segment to the closest part of the vehicle side.

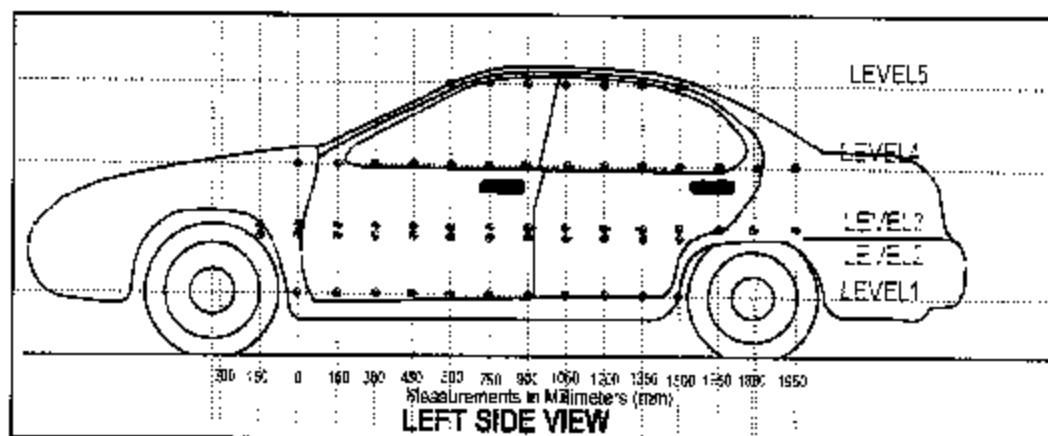
Upper measurement is taken laterally at center of the upper rib accelerometer height from the SID HIII arm segment to the closest part of the vehicle side.

Data Sheet 9

Vehicle Side Measurements

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101



Level 5 - Window Top

Level 4 - Window Sill

Level 3 - Mid-Door

Level 2 - Occupant H-Point

Level 1 - Axle Centerline Height or Sill Top Height

Measurements Are Taken When The Vehicle Is In The "As Tested" Configuration.

Measurements along the vertical 750 mm line shown above:

Level 5 @ Window Top	=	<u>1630</u>	mm
Level 4 @ Window Sill	=	<u>1080</u>	mm
Level 3 @ Mid Door	=	<u>750</u>	mm
Level 2 @ Occupant H-Point	=	<u>711</u>	mm
Level 1 @ Axle Centerline Height (or Sill Top Height)	=	<u>340</u>	mm

Data Sheet 10

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101

Location	Height	(mm) From Impact Point														
		-1200	-1050	-900	-750	-600	-450	-300	-150	0	150	300	450	600	750	
Level 1 Side Sill	Pre	---	---	---	---	---	---	---	---	---	659	664	665	665	664	
	Post	---	---	---	---	---	---	---	---	---	740	747	750	748	746	
	Crush	---	---	---	---	---	---	---	---	---	81	83	85	83	82	
Level 2 H-Point	Pre	---	664	625	600	---	---	590	---	580	596	596	587	586	585	
	Post	---	659	625	603	---	---	---	---	621	771	836	855	862	865	
	Crush	---	-5	0	3	---	---	---	---	41	175	240	268	276	280	
Level 3 Mid-Door	Pre	---	681	632	600	---	---	---	---	588	596	595	590	588	589	
	Post	---	680	634	605	---	---	---	---	613	767	835	857	868	876	
	Crush	---	-1	2	5	---	---	---	---	25	171	240	267	280	287	
Level 4 Window Sill	Pre	---	---	---	745	720	705	691	685	670	660	652	640	635	625	
	Post	---	---	---	743	724	710	700	693	690	690	705	718	726	732	
	Crush	---	---	---	-2	4	5	9	8	20	30	53	78	91	107	
Level 5 Window Top	Pre	---	---	---	---	---	---	---	---	---	---	---	---	---	905	
	Post	---	---	---	---	---	---	---	---	---	---	---	---	---	931	
	Crush	---	---	---	---	---	---	---	---	---	---	---	---	---	26	

Data Sheet 10 (Continued)

Vehicle Exterior Crush Profiles - All Levels

NHTSA No.: C45101

Vehicle: 2004 Lexus RX330 MPV

Location	Height	(mm) From Impact Point														
		900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700		
Level 1 Side Sill	Pre	665	665	667	665	667	665	665	---	---	---	---	---	---		
	Post	742	743	740	737	738	740	738	---	---	---	---	---	---		
	Crush	77	78	73	72	71	75	73	---	---	---	---	---	---		
Level 2 H-Point	Pre	582	580	581	580	583	585	590	590	---	---	---	---	600		
	Post	867	862	832	869	873	871	850	710	---	---	---	---	620		
	Crush	285	282	251	289	290	286	260	120	---	---	---	---	20		
Level 3 Mid-Door	Pre	588	587	588	590	590	594	590	585	---	---	---	---	600		
	Post	877	871	843	881	886	885	849	727	---	---	---	---	620		
	Crush	289	284	255	291	296	291	259	142	---	---	---	---	20		
Level 4 Window Sill	Pre	620	615	612	610	610	610	610	602	600	621	630	639	650		
	Post	739	745	760	775	803	779	750	714	651	671	690	676	633		
	Crush	119	130	148	165	193	169	140	112	51	50	60	37	-17		
Level 5 Window Top	Pre	895	885	885	882	882	882	880	888	894	900	908	---	---		
	Post	928	911	915	915	905	901	900	899	901	906	916	---	---		
	Crush	33	26	30	33	23	19	20	11	7	6	8	---	---		

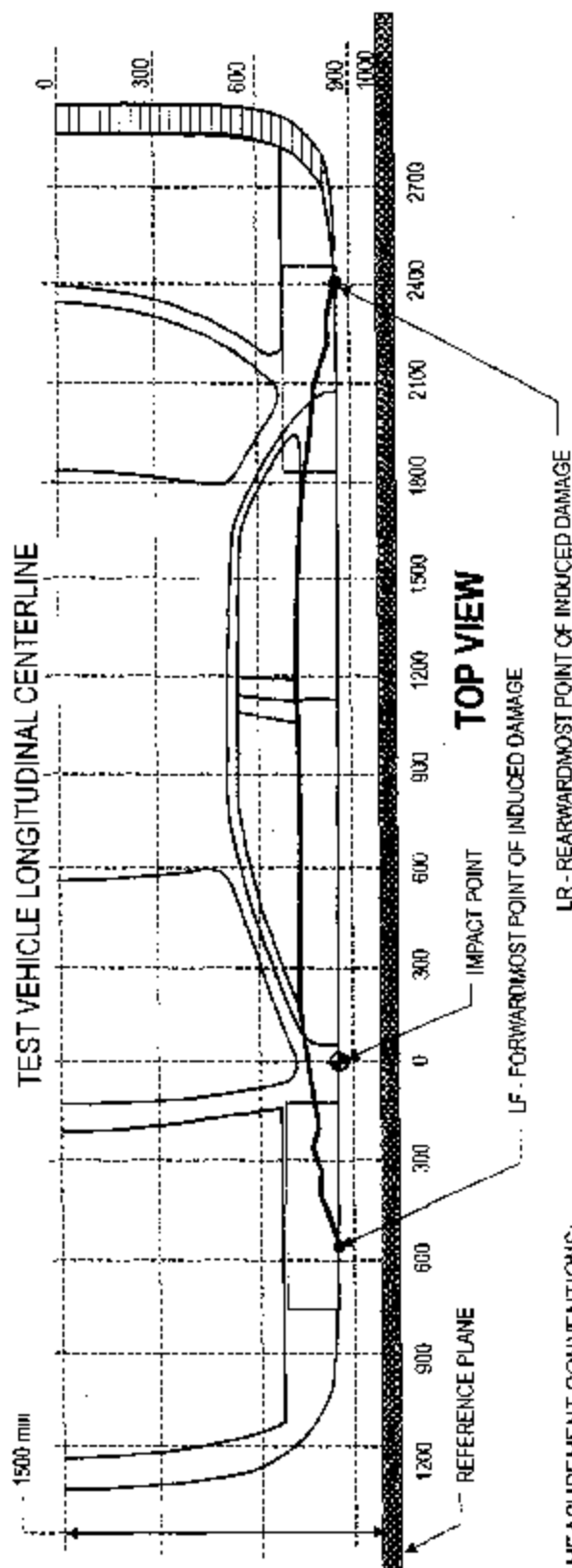
# Data Sheet 11

## Vehicle Damage Profile Distances

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101

NOTE: All measurements are in millimeters (mm) and should be accurate to plus or minus 3mm.



### MEASUREMENT CONVENTIONS:

Forward of the impact point (towards front of vehicle) is considered negative (-)

Rearward of the impact point (towards rear end of vehicle) is considered positive (+)

DPD Measurements	Post-Test (mm)	Pre-Test (mm)	Static Crush (mm)
6: LF = 0 mm (Level 2)	621	580	41
5: 600 mm (Level 3)	868	588	280
4: 900 mm (Level 3)	877	588	289
3: 1200 mm (Level 3)	846	588	258
2: 1500 mm (Level 3)	886	590	296
1: LR = 2100 mm (Level 4)	651	600	51

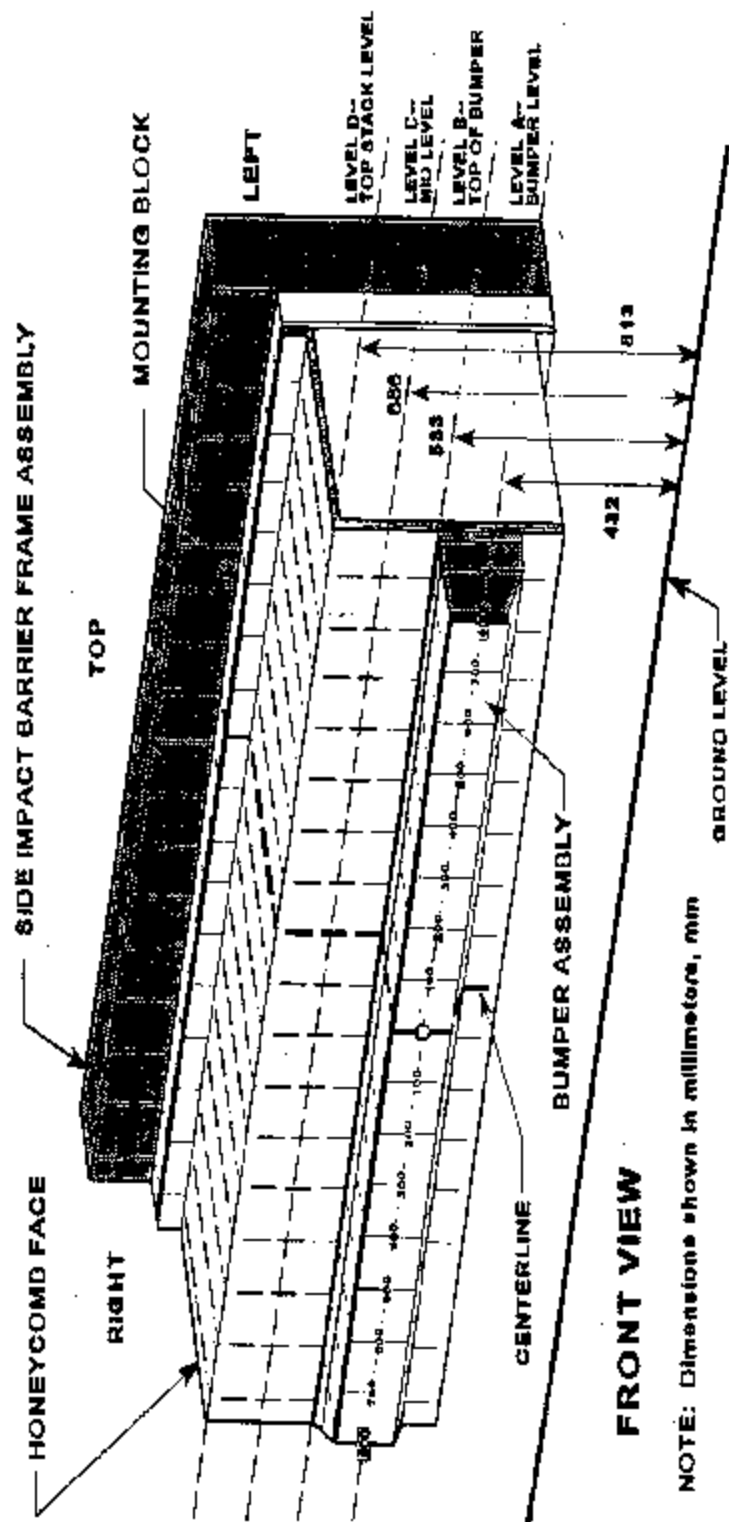
Full length of induced damage was 0 to 2100 mm.

### Exterior Static Crush For Impact Face

(Grid as looking at MDB from front)

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101



**NOTE: Dimensions shown in millimeters, mm**

# Data Sheet 12 (Continued)

## Exterior Static Crush For Impactor Face

Vehicle: 2004 Lexus RX330 MPV

NIITSA No.: C45101

		Distance Right of Center (mm)										Distance Left of Center (mm)							
Location	Height At CL	800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800	
Top Stack Level - Level D	811	-36	-26	-17	-16	-24	-37	-57	-52	-42	-45	-48	-51	-57	-71	-85	-93	-137	
Mid Level Level C <sup>1</sup>	N/A	-21	-18	-14	-14	-19	-32	-53	-32	-20	-14	-14	-16	-50	-27	-42	-59	-107	
Top Bumper Level - Level B	557	-76	-72	-67	-65	-60	-59	-62	-64	-67	-68	-64	-65	-67	-69	-71	-76	-82	
Mid Bumper Level - Level A	432	-153	-161	-155	-150	-145	-144	-144	-144	-144	-146	-146	-147	-148	-149	-150	-156	-160	

All measurements are in millimeters and have a tolerance of  $\pm 3$ mm.

<sup>1</sup> Pre-test measurement height not recorded.

# Data Sheet 12 (Continued)

## Exterior Static Crush For Impactor Face

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101

## Deformable Barrier Face Profile

### Level D - Top Stack

#### Pre-Test

Index	Xmm	Ymm	Zmm
1	-380	801	-45
2	-380	701	-46
3	-381	601	-46
4	-380	500	-47
5	-381	401	-46
6	-381	300	-47
7	-381	200	-47
8	-381	100	-47
9	-382	0	-48
10	-382	-100	-48
11	-382	-200	-48
12	-382	-300	-48
13	-382	-400	-48
14	-382	-500	-49
15	-382	-600	-49
16	-382	-700	-49
17	-382	-800	-49

#### Post-Test

Index	Xmm	Ymm	Zmm
1	-344	748	-99
2	-355	650	-111
3	-364	551	-117
4	-365	453	-112
5	-357	355	-105
6	-345	256	-97
7	-325	159	-98
8	-330	60	-96
9	-340	-38	-95
10	-337	-138	-99
11	-334	-237	-96
12	-331	-336	-88
13	-325	-434	-81
14	-311	-532	-76
15	-297	-631	-70
16	-289	-730	-60
17	-246	-817	-64

#### Difference

Index	Xmm	Ymm	Zmm
1	-36	53	53
2	-26	51	65
3	-17	50	71
4	-16	48	65
5	-24	46	59
6	-37	44	51
7	-57	42	51
8	-52	40	49
9	-42	38	47
10	-45	38	51
11	-48	37	48
12	-51	36	40
13	-57	34	33
14	-71	32	28
15	-85	31	21
16	-93	30	11
17	-137	17	15



# Data Sheet 12 (Continued)

## Exterior Static Crush For Impactor Face

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101

## Deformable Barrier Face Profile Cont'd.

### Level C - Mid Level<sup>1</sup>

#### Pre-Test

Index	Xmm	Ymm	Zmm
18	-376	801	-165
19	-377	701	-165
20	-377	601	-166
21	-377	501	-167
22	-379	401	-167
23	-379	301	-168
24	-378	201	-168
25	-381	101	-169
26	-379	0	-170
27	-378	-100	-170
28	-379	-200	-171
29	-380	-299	-171
30	-381	-399	-172
31	-380	-499	-173
32	-381	-599	-174
33	-381	-700	-175
34	-382	-800	-176

#### Post-Test

Index	Xmm	Ymm	Zmm
18	-354	752	-241
19	-359	655	-240
20	-363	556	-237
21	-363	456	-234
22	-360	356	-230
23	-347	257	-223
24	-326	157	-222
25	-349	57	-218
26	-359	-43	-216
27	-364	-143	-213
28	-365	-243	-210
29	-364	-343	-207
30	-361	-442	-203
31	-353	-542	-199
32	-339	-641	-193
33	-322	-739	-185
34	-275	-831	-190

#### Difference

Index	Xmm	Ymm	Zmm
18	-21	49	76
19	-18	46	74
20	-14	45	71
21	-14	45	67
22	-19	45	63
23	-32	44	56
24	-53	45	54
25	-32	44	49
26	-20	44	46
27	-14	43	43
28	-14	42	39
29	-16	44	36
30	-20	43	31
31	-27	43	26
32	-42	42	20
33	-59	40	10
34	-107	31	14

<sup>1</sup> Row C at Mid Level pre-test measurements were not collected prior to impact. Pre-test measurements from a second barrier face were used to determine difference.

Data Sheet 12 (Continued)  
Exterior Static Crush For Impactor Face  
Deformable Barrier Face Profile Cont'd

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101

Level B - Top of Bumper

Pre-Test

Index	Xmm	Ymm	Zmm
35	-380	800	-299
36	-381	700	-299
37	-381	599	-300
38	-381	500	-300
39	-381	400	-300
40	-381	300	-301
41	-381	200	-301
42	-382	100	-301
43	-381	0	-301
44	-382	-100	-301
45	-382	-200	-302
46	-382	-300	-302
47	-382	-400	-302
48	-383	-500	-302
49	-382	-600	-302
50	-382	-700	-302
51	-382	-800	-303

Post-Test

Index	Xmm	Ymm	Zmm
35	-305	752	-314
36	-308	651	-307
37	-314	550	-313
38	-316	450	-320
39	-321	347	-324
40	-322	254	-325
41	-319	155	-325
42	-317	56	-322
43	-314	-51	-318
44	-314	-147	-316
45	-318	-249	-309
46	-317	-349	-305
47	-315	-450	-302
48	-314	-549	-300
49	-311	-650	-297
50	-307	-750	-294
51	-300	-850	-293

Difference

Index	Xmm	Ymm	Zmm
35	-76	48	15
36	-72	49	8
37	-67	49	14
38	-65	50	20
39	-60	52	24
40	-59	46	24
41	-62	45	24
42	-64	44	21
43	-67	51	16
44	-68	47	15
45	-64	49	7
46	-65	49	4
47	-67	50	-1
48	-69	50	-3
49	-71	50	-5
50	-76	50	-8
51	-82	50	-9

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101

Deformable Barrier Face Profile Cont'd.

Level A - Mid Bumper

Pre-Test

Index	Xmm	Ymm	Zmm
52	-474	798	-425
53	-484	700	-424
54	-484	601	-425
55	-485	501	-425
56	-485	400	-425
57	-485	300	-426
58	-485	201	-426
59	-485	101	-427
60	-485	0	-427
61	-485	-101	-428
62	-486	-200	-427
63	-485	-300	-428
64	-486	-400	-428
65	-486	-501	-428
66	-486	-600	-428
67	-486	-700	-429
68	-476	-799	-428

Post-Test

Index	Xmm	Ymm	Zmm
52	-321	778	-452
53	-323	649	-453
54	-330	550	-456
55	-335	450	-458
56	-340	349	-461
57	-341	249	-460
58	-341	150	-460
59	-341	50	-459
60	-341	-52	-459
61	-340	-152	-457
62	-340	-251	-456
63	-338	-351	-455
64	-338	-451	-454
65	-337	-551	-453
66	-336	-651	-451
67	-330	-751	-448
68	-316	-849	-440

Difference

Index	Xmm	Ymm	Zmm
52	-153	20	27
53	-161	52	28
54	-155	52	32
55	-150	51	34
56	-145	51	35
57	-144	51	35
58	-144	51	34
59	-144	51	32
60	-144	51	32
61	-146	51	30
62	-146	51	28
63	-147	51	27
64	-148	51	26
65	-149	51	25
66	-150	51	23
67	-156	51	19
68	-160	50	12

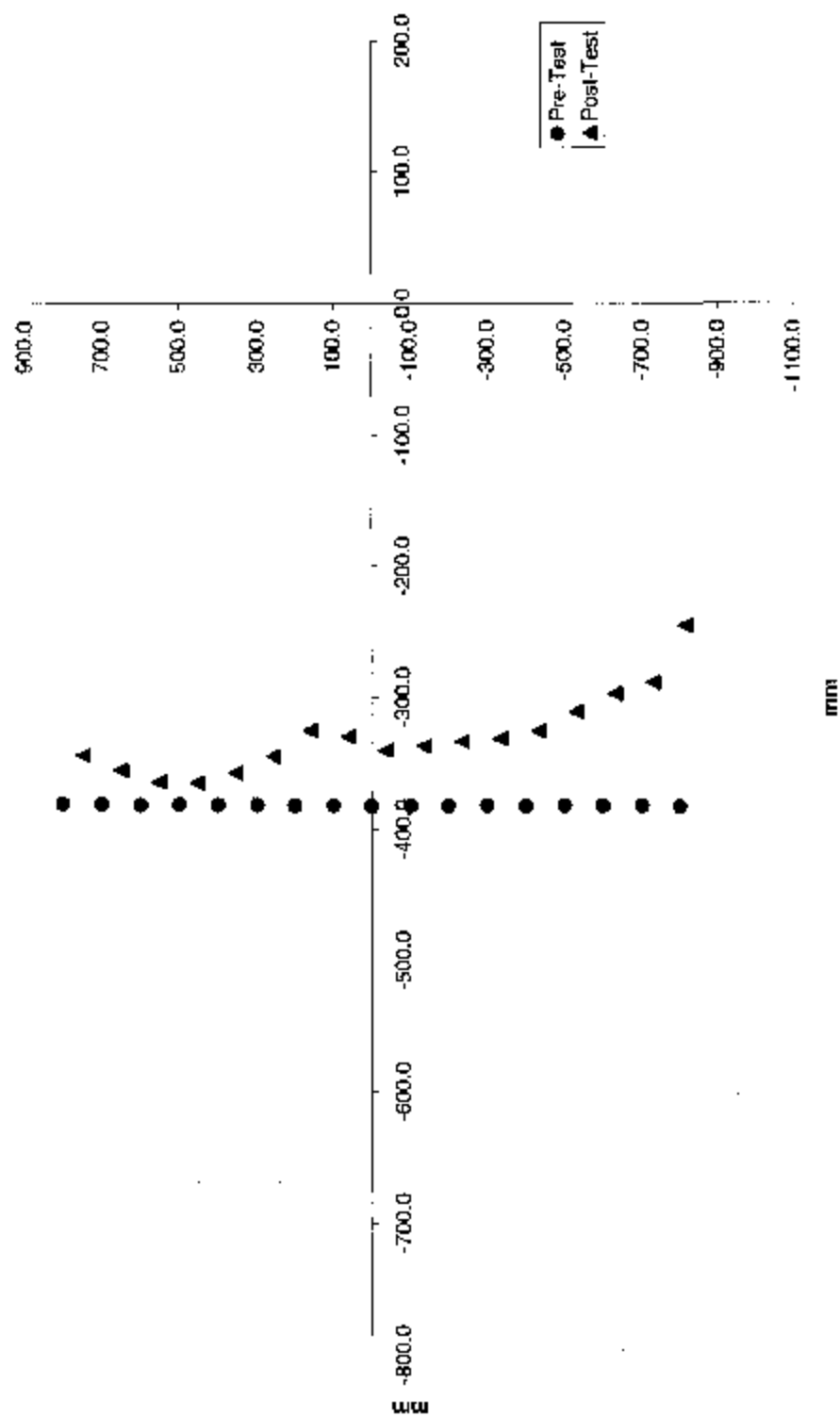
# Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101

## Laval D - Deformable Barrier Face Profile 1-17



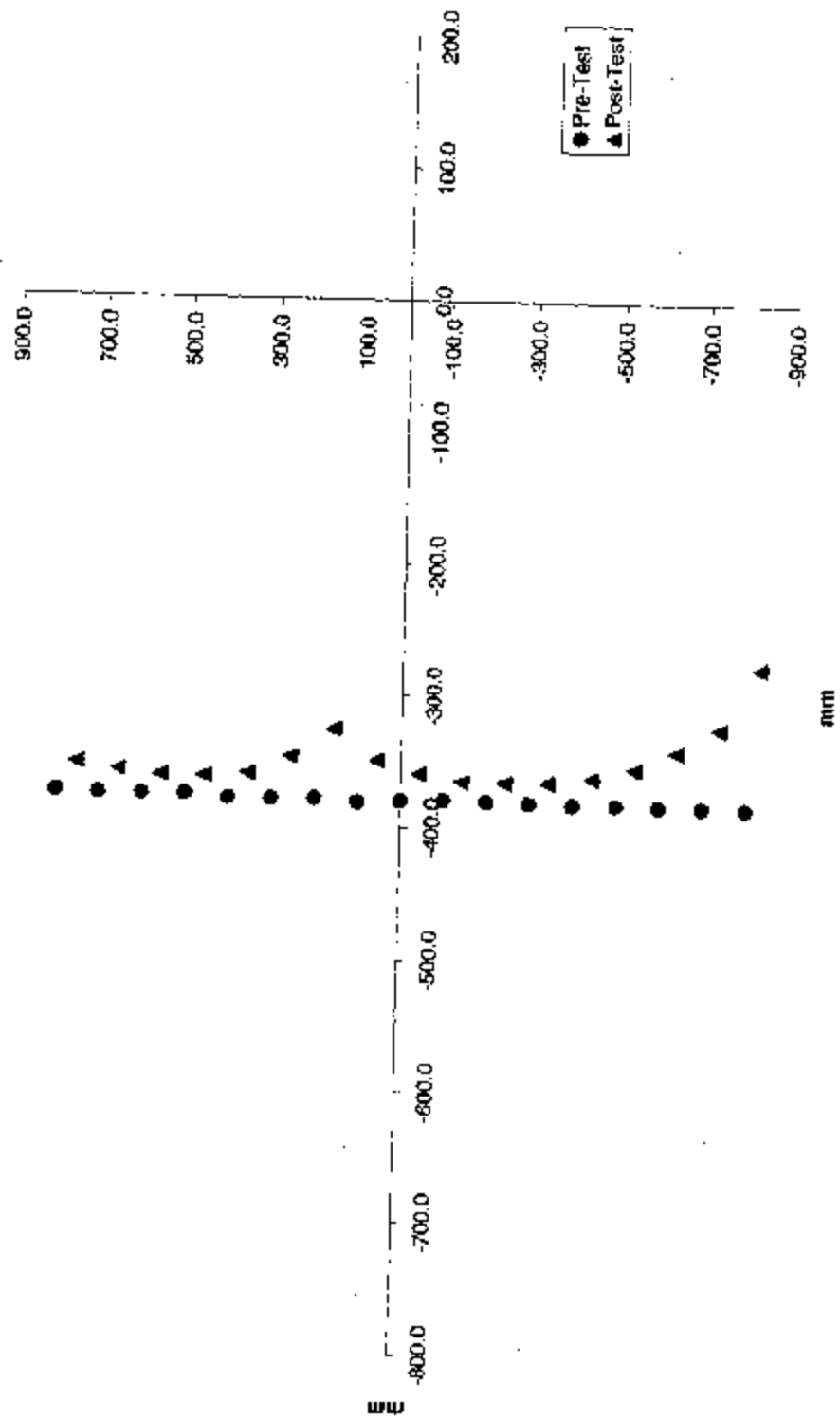
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101

**Level C - Deformable Barrier Face Profile 18-34**

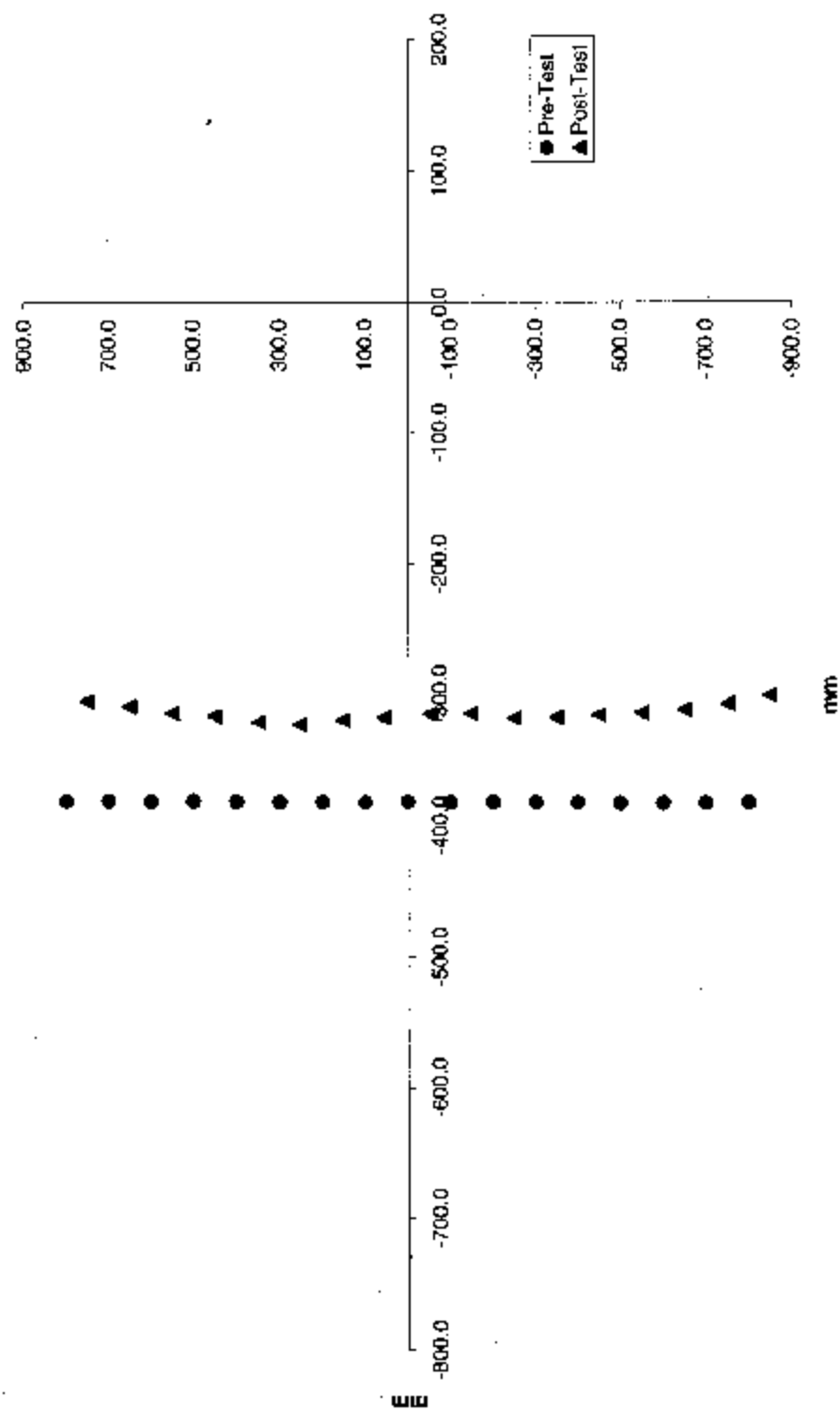


Data Sheet 12 (Continued)  
Exterior Static Crush For Impactor Face

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101

**Level B - Deformable Barrier Face Profile 35-51**



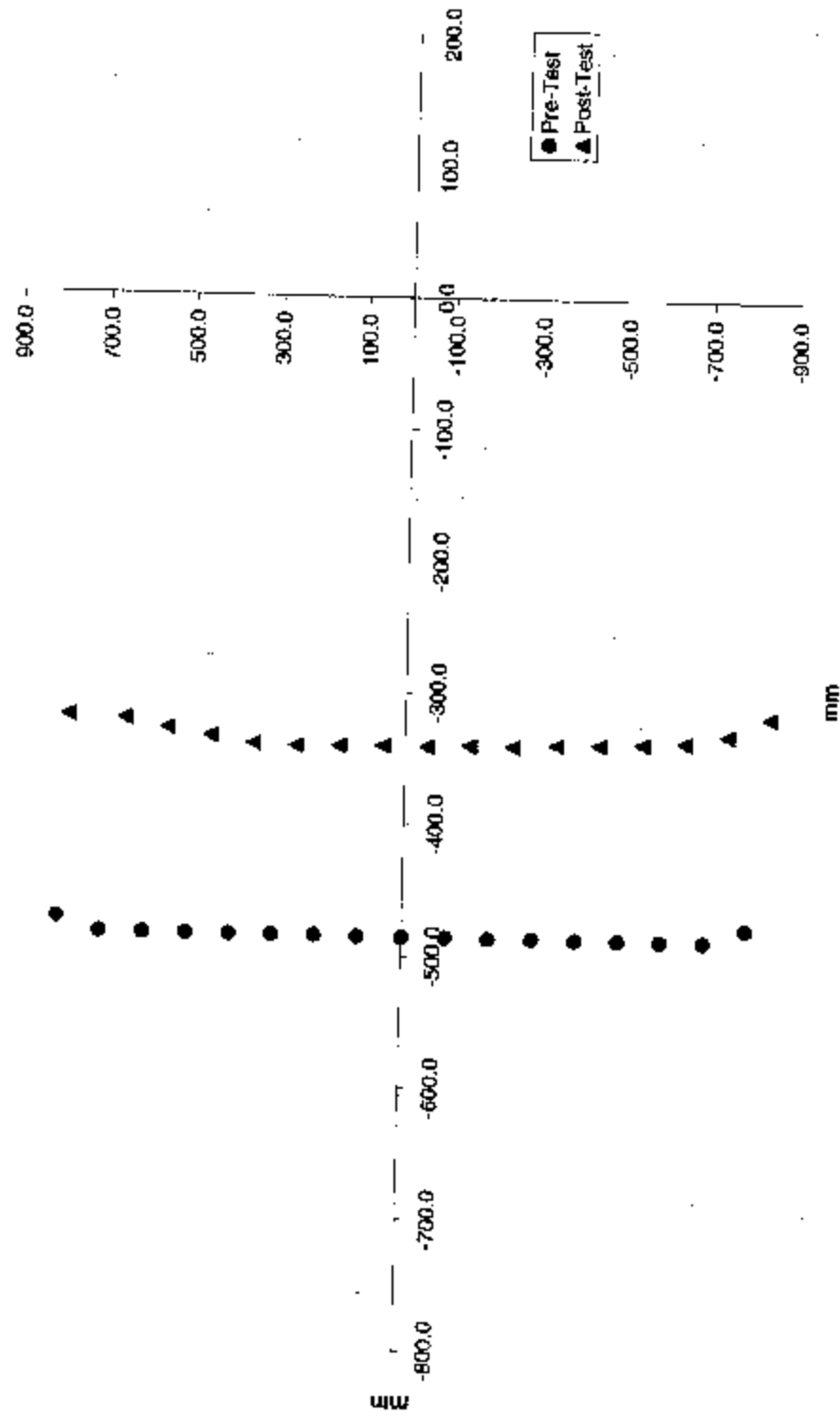
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C4510J

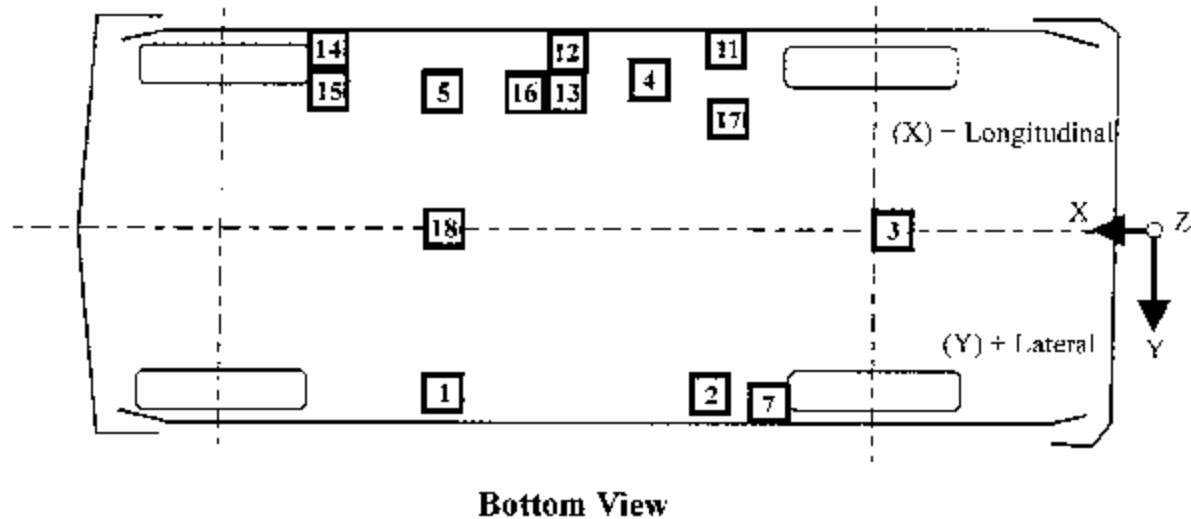
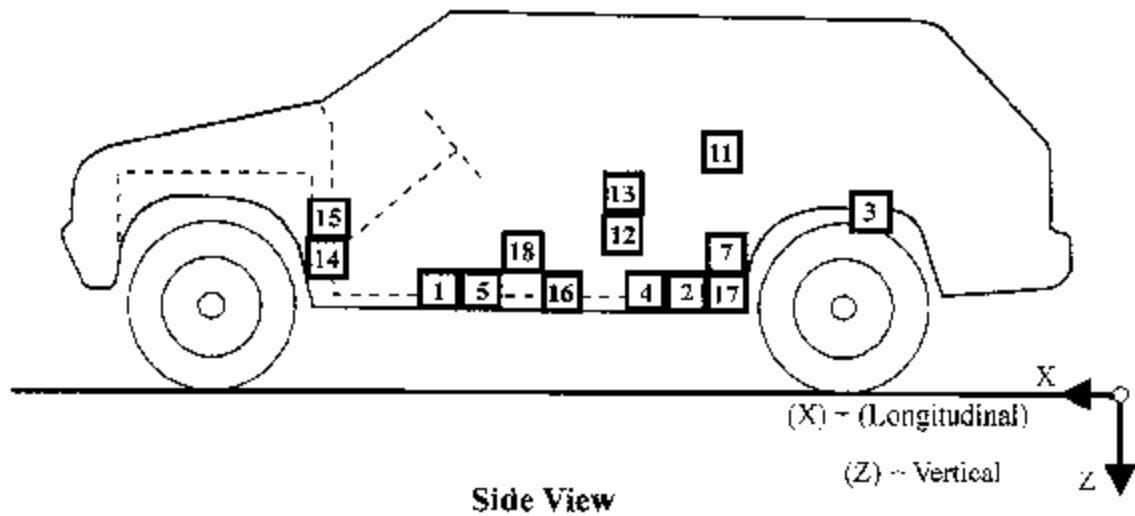
**Level A - Deformable Barrier Face Profile 52-68**



Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101



- |                                    |                                          |
|------------------------------------|------------------------------------------|
| 1-Right Front Side Sill            | 10-Left Rear Door Mid Rear               |
| 2-Right Side Sill at Rear Seat     | 11-Left Rear Door Upper Centerline       |
| 3-Rear Floorpan above Axle         | 12-Left Side Lower B-pillar              |
| 4-Left Side Sill at Rear Seat      | 13-Left Side Middle B-pillar             |
| 5-Left Front Side Sill             | 14-Left Side Lower A-pillar              |
| 6-Left Front Door on Centerline    | 15-Left Side Middle A-pillar             |
| 7-Right Rear Occupant Compartment  | 16-Left Side Front Seat Track at H-point |
| 8-Left Front Door Mid Rear         | 17-Left Rear Seat Track at H-point       |
| 9-Left Front Door Upper Centerline | 18-Vehicle Center of Gravity             |



Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101

TEST NUMBER: 030924

No. LOCATION

X

Y

Z

POSITIVE  
DIRECTION

NEGATIVE  
DIRECTION

1	RIGHT SIDE SILL AT FRONT SEAT	3295 mm	680 mm	-400 mm					
	LONGITUDINAL				28.2 g	@ 251.8 ms	97.6 g	@ 19.4 ms	
	LATERAL				26.7 g	@ 6.6 ms	2.0 g	@ 281.0 ms	
	VERTICAL				5.0 g	@ 72.1 ms	12.4 g	@ 7.5 ms	
	RESULTANT				98.5 g	@ 19.4 ms			
2	RIGHT SIDE SILL AT REAR SEAT	2405 mm	680 mm	-408 mm					
	LONGITUDINAL				3.8 g	@ 59.8 ms	6.5 g	@ 9.8 ms	
	LATERAL				32.4 g	@ 6.8 ms	2.1 g	@ 141.4 ms	
	VERTICAL				5.9 g	@ 139.4 ms	11.3 g	@ 12.6 ms	
	RESULTANT				33.4 g	@ 6.9 ms			
3	REAR FLOORPAN ABOVE AXLE	1460 mm	0 mm	-570 mm					
	LONGITUDINAL				2.0 g	@ 110.9 ms	6.9 g	@ 16.2 ms	
	LATERAL				20.9 g	@ 33.7 ms	2.3 g	@ 84.2 ms	
	VERTICAL				6.8 g	@ 44.1 ms	6.0 g	@ 56.6 ms	
	RESULTANT				21.5 g	@ 33.7 ms			
4	LEFT SIDE SILL AT REAR SEAT	2295 mm	-680 mm	-399 mm					
	LATERAL				38.1 g	@ 6.2 ms	46.9 g	@ 12.5 ms	

# Data Sheet 13 (Continued)

## Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101

TEST NUMBER: 030924  
No. LOCATION

POSITIVE  
DIRECTION

NEGATIVE  
DIRECTION

X	Y	Z			
5 LEFT SIDE SILL AT FRONT SEAT LATERAL	3280 mm	-680 mm	-413 mm		
				130.0 g @ 7.0 ms	1584.6 g @ 19.5 ms
7 RIGHT REAR OCCUPANT COMPARTMENT LATERAL	2260 mm	650 mm	-430 mm		
				32.8 g @ 6.8 ms	2.2 g @ 140.6 ms
12 LEFT LOWER B-POST LATERAL	2628 mm	-750 mm	-665 mm		
				143.6 g @ 5.9 ms	78.3 g @ 18.0 ms
13 LEFT MIDDLE B-POST LATERAL	2620 mm	-750 mm	-1027 mm		
				114.2 g @ 7.9 ms	47.3 g @ 20.7 ms
14 LEFT LOWER A-POST LATERAL	3730 mm	-730 mm	-511 mm		
				40.0 g @ 2.2 ms	76.6 g @ 19.9 ms
15 LEFT MIDDLE A-POST LATERAL	3685 mm	-730 mm	-329 mm		
				57.0 g @ 4.4 ms	8.8 g @ 21.2 ms
16 LEFT FRONT SEAT TRACK LATERAL	2945 mm	-600 mm	-470 mm		
				82.3 g @ 17.5 ms	65.1 g @ 22.3 ms
17 LEFT REAR SEAT TRACK LATERAL	2015 mm	-594 mm	-369 mm		
				35.8 g @ 7.0 ms	29.5 g @ 20.6 ms

# Data Sheet 13 (Continued)

## Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101

TEST NUMBER: 030924  
No. LOCATION

	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
18 VEHICLE CENTER OF GRAVITY	3300 mm	40 mm	-415 mm		
LONGITUDINAL				3.2 g @ 59.2 ms	8.4 g @ 12.0 ms
LATERAL				28.1 g @ 6.5 ms	1.9 g @ 281.4 ms
VERTICAL				17.9 g @ 17.5 ms	9.5 g @ 54.8 ms
RESULTANT				31.3 g @ 6.4 ms	

REFERENCE: X: + FORWARD FROM REAR BUMPER  
Y: + RIGHTWARD FROM VEHICLE CENTERLINE  
Z: + DOWNWARD FROM GROUND LEVEL

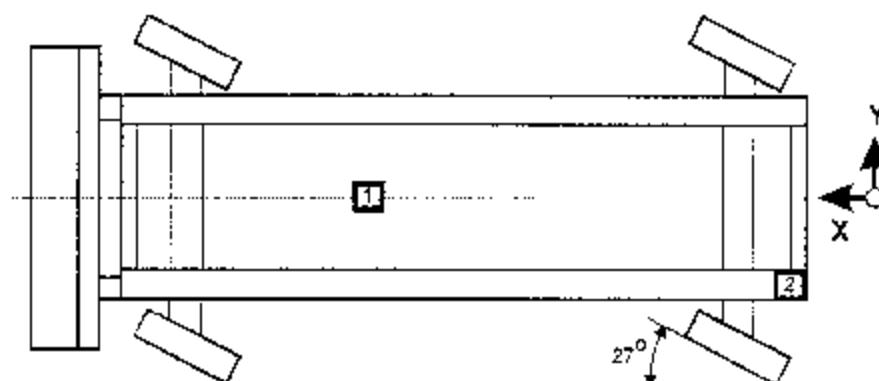
For acceleration data sign convention see Report Sign Convention in Appendix D.  
See DATA ACQUISITION EXPLANATIONS on page 2-3

# Data Sheet 14

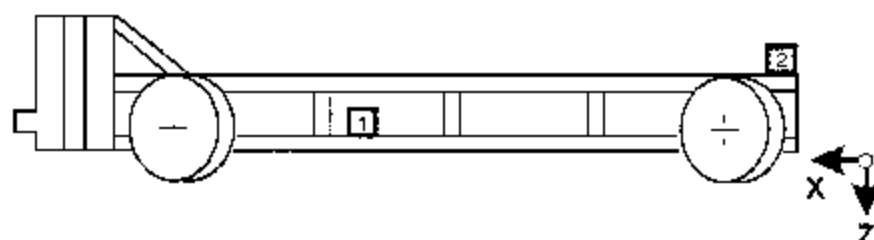
## MDB Accelerometer Locations and Data Summary

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101



TOP VIEW



SIDE VIEW

Accel. No.	Location	Coordinates (millimeters)			Positive Direction		Negative Direction	
		X*	Y*	Z*	Max. (g)	Time (ms)	Max. (g)	Time (ms)
1	MDB Center of Gravity	1855	0	-520				
	Longitudinal X				5.1	98.2	23.2	35.4
	Lateral Y				4.2	61.6	7.1	21.4
	Vertical Z				5.6	59.5	6.3	22.4
	Resultant R				23.7	35.4		
2	Rear Frame Member	412	-677	-625				
	Longitudinal X				2.9	119.4	25.4	35.9
	Lateral Y				2.5	14.9	2.7	58.7

\*Reference: X = Rear Bumper (+ Forward)

Y = Vehicle Centerline (+ To Right)

Z = Ground Level (+ Down)

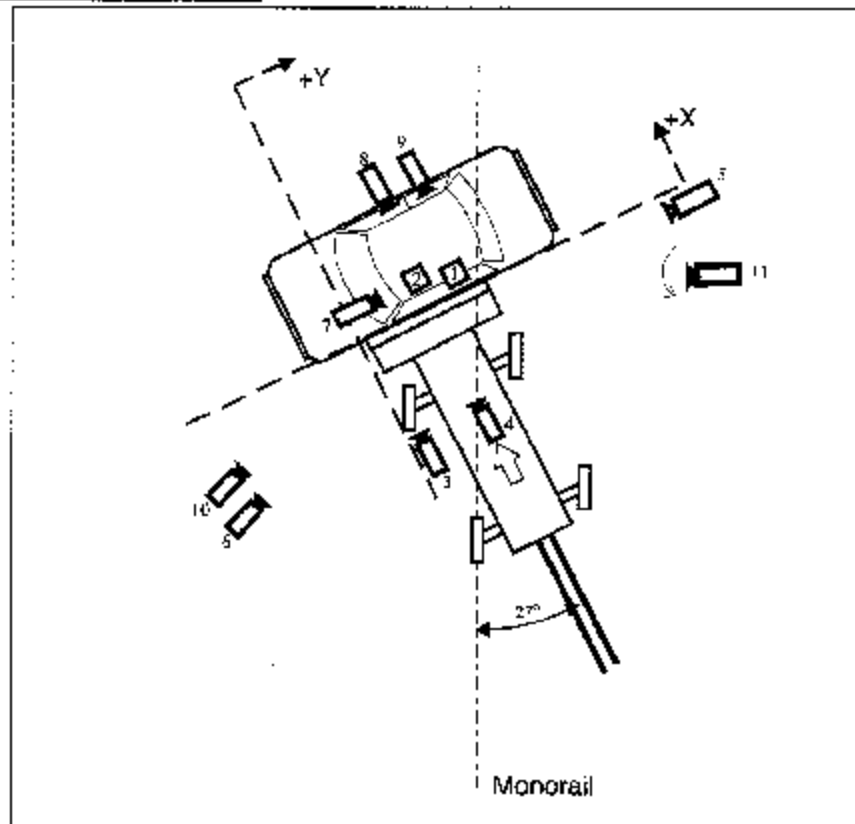
All measurements accurate to within +3 mm.

# Data Sheet 15

## High-Speed Camera Locations and Data Summary

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101



Camera Number	Location	Location, mm			Angle (deg.)	Lens (mm)	Speed (fps)
		X	Y	Z			
1	Overhead wide	250	2150	-5750	-77.5	8.5	350
2	Overhead tight	370	1800	-5750	-85.5	17	955
3	Onboard MDB left side	-1750	-40	-720	-0.5	13	1000
4	Onboard MDB center	-2480	830	-1353	-5.2	25	997
5	Right side of MDB	-670	10550	-1180	0.7	13	1000
6	Left side of MDB	3100	-4250	-1030	1.4	13	870
7	Onboard vehicle front	540	-460	-1450	9.7	13	680
8	Onboard side front door	-1770	770	-1220	0.8	8	N/A <sup>1</sup>
9	Onboard side rear door	-1770	1670	-1270	-2.3	8	N/A <sup>1</sup>
10	Digital overall event	2950	-4500	-953	1.5	13	1000
11	Real-time Panning-Video	N/A	N/A	N/A	N/A	Zoom	30

+X: Forward (referenced to MDB) from impact point

+Y: Rightward (referenced to MDB) from impact point

+Z: Downward from ground level

<sup>1</sup> Camera ran too slow to time.

Section 5

Vehicle Fuel System Integrity

Data Sheet 16

FMVSS 301 Fuel System Integrity Data

NHTSA No.: C45101

Test Date: 09/24/03

Vehicle Year/Make/Model/Body Style: 2004 Lexus RX330 MPV

\*\*\*\*\*

Test Vehicle Impact Type :

- ☐ Frontal (48.28 km/h)  
☐ Oblique (48.28 km/h) with \_\_\_\_° barrier face  
first contacting the (driver/passenger) side  
☐ Rear Moving Barrier (48.28 km/h)  
☐ Lateral Moving Barrier (32.19 km/h)  
☒ Side Impact Moving Deformable Barrier (62.0  
km/h) contacting the Driver's side side

Fuel Spillage Measurement:

1. From impact until vehicle motion ceases
2. For five-minute period after vehicle motion ceases
3. For next 25 minutes.

Actual	Maximum Allowed
0 g	28 g
0 g	142 g
0 g	28 g/1 minute

Solvent Spillage Details :

None

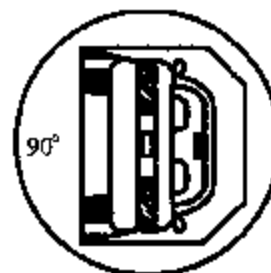
Data Sheet 17

FMVSS 301 Rollover Data

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101

0 - 90 Degrees



1. Determination of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time      1 minutes      30 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time +      5 minutes      0 seconds

Total      6 minutes      30 seconds

Next whole minute interval      7 minutes

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
----------------------------------------	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

None



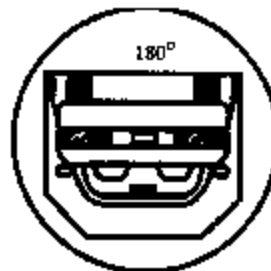
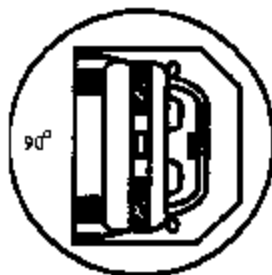
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101

90 - 180 Degrees



1. Determination of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time      1 minutes      30 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time +      5 minutes      0 seconds

Total      6 minutes      30 seconds

Next whole minute interval      7 minutes

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
----------------------------------------	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

None

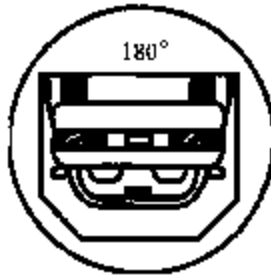
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101

180 - 270 Degrees



1. Determination of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time	<u>1</u>	minutes	<u>30</u>	seconds
(Spec. Range = 1 to 3 minutes)				
FMVSS 301 Position Hold Time -	<u>5</u>	minutes	<u>0</u>	seconds
Total	<u>6</u>	minutes	<u>30</u>	seconds
Next whole minute interval	<u>7</u>	minutes		

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
----------------------------------------	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

<u>142 g</u>	<u>28 g</u>	<u>28 g</u>	<u>28 g</u>
--------------	-------------	-------------	-------------

3. Actual Test Vehicle Solvent Spillage:

<u>0 g</u>	<u>0 g</u>	<u>0 g</u>	<u>N/A</u>
------------	------------	------------	------------

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

None

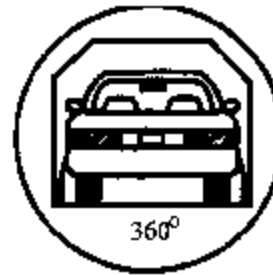
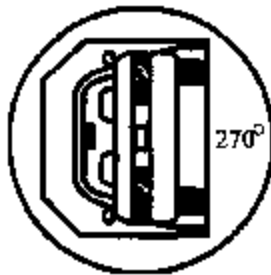
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2004 Lexus RX330 MPV

NHTSA No.: C45101

270 - 360 Degrees



1. Determination Of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time      1 minutes      30 seconds  
(Spec. Range = 1 to 3 minutes)  
FMVSS 301 Position Hold Time ~      5 minutes      0 seconds  
Total      6 minutes      30 seconds  
Next whole minute interval      7 minutes

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
----------------------------------------	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

None

## Appendix A

### Photographs

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<sup>1</sup> The test vehicle is incorrectly labeled as C45600 in the photos. The correct NHTSA number for this vehicle is C45101.

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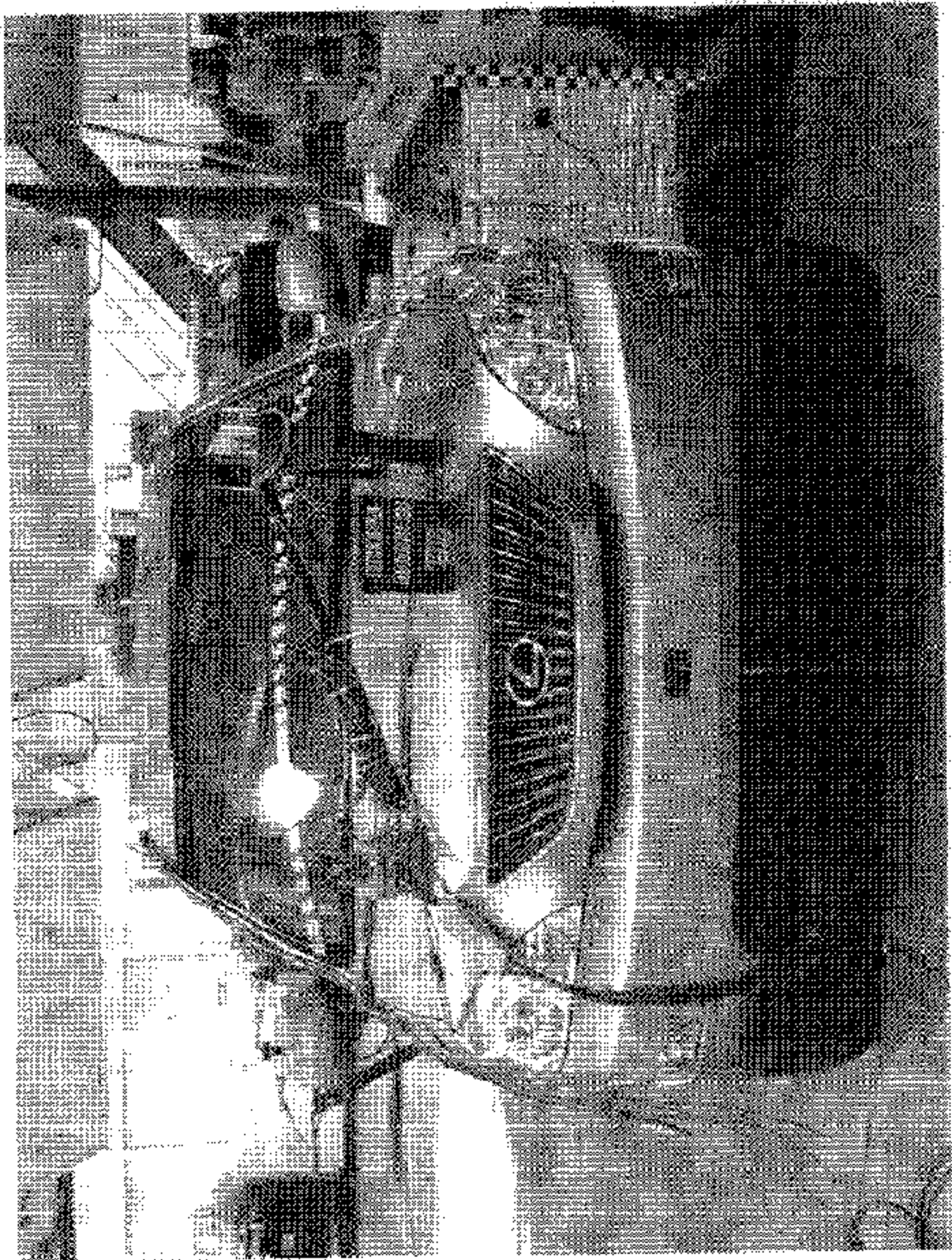


Figure A-1 Pre-Test Front View of Test Vehicle

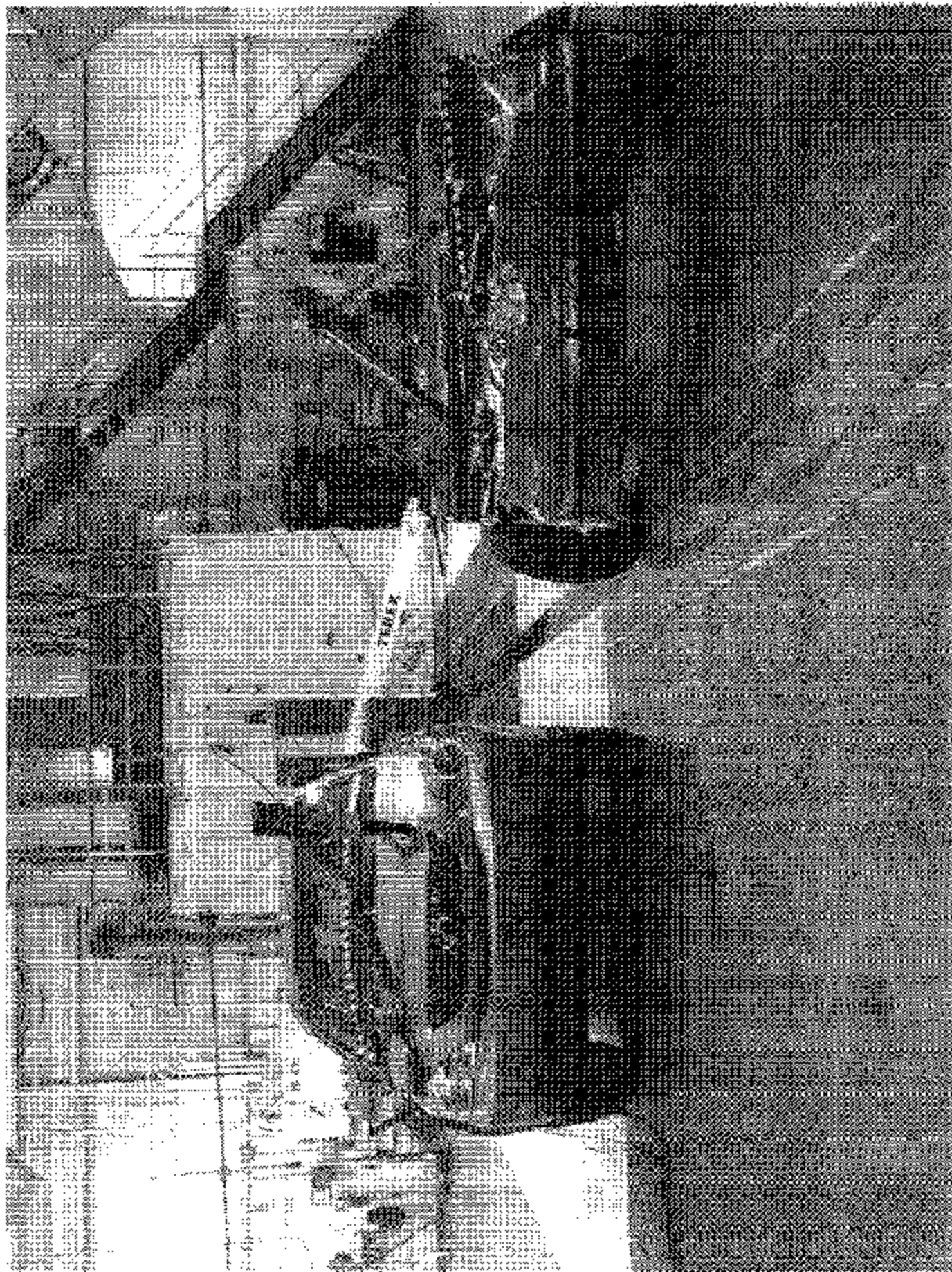


Figure A-2 Post-Test Front View of Test Vehicle



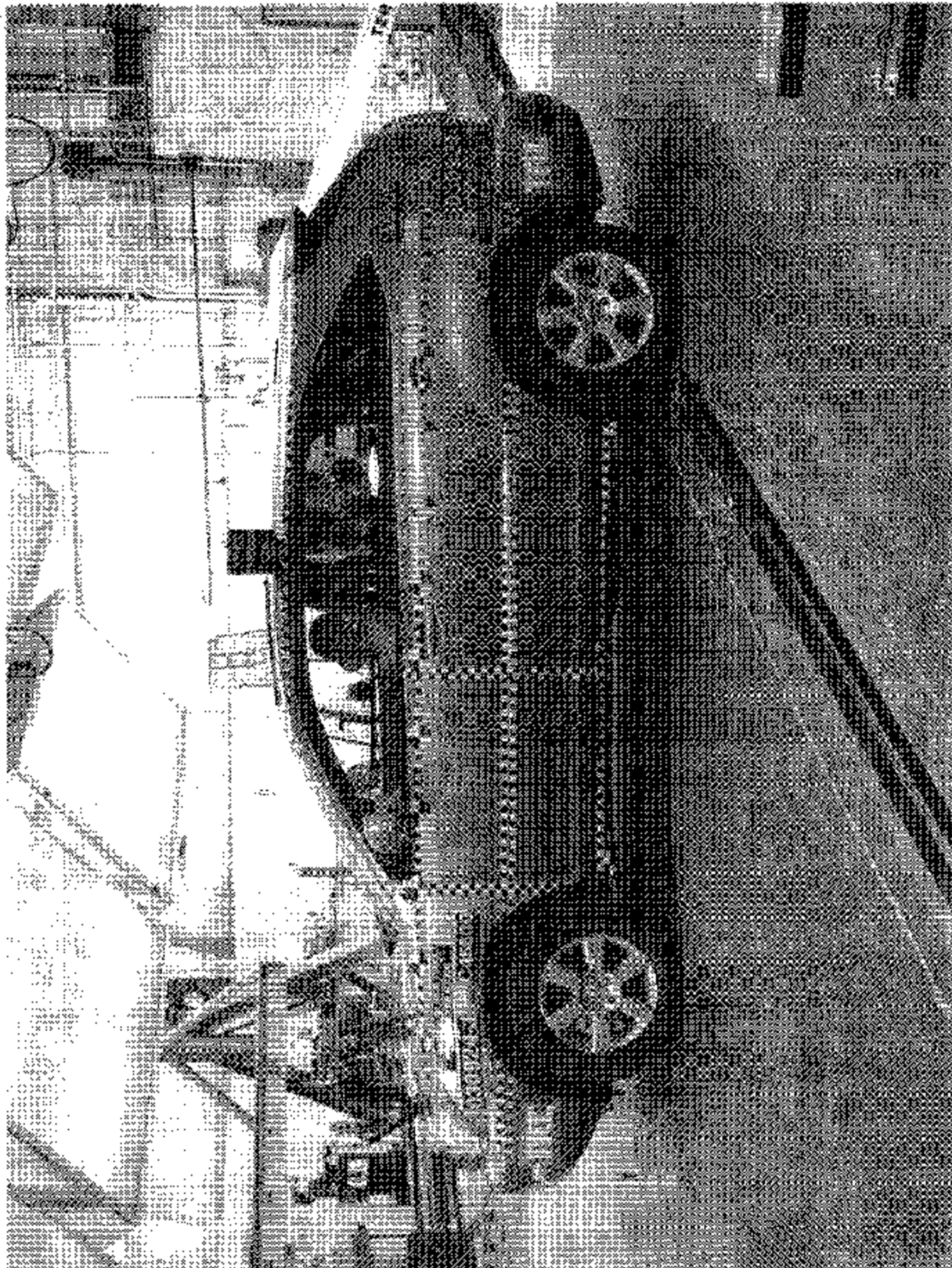


Figure A-3 Pre-Test Impacted Side View of Test Vehicle

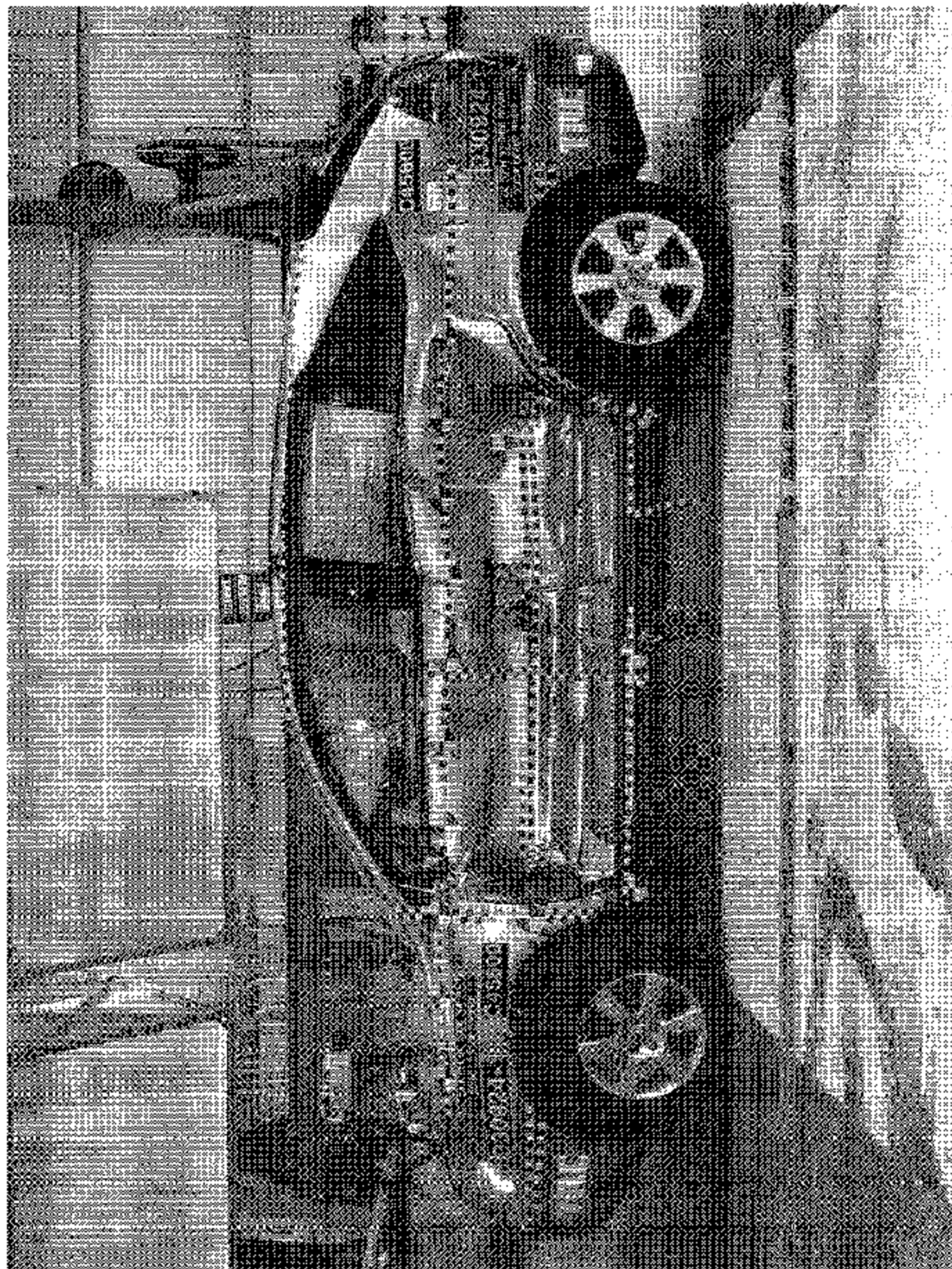


Figure A-4 Post-Test Impacted Side View of Test Vehicle

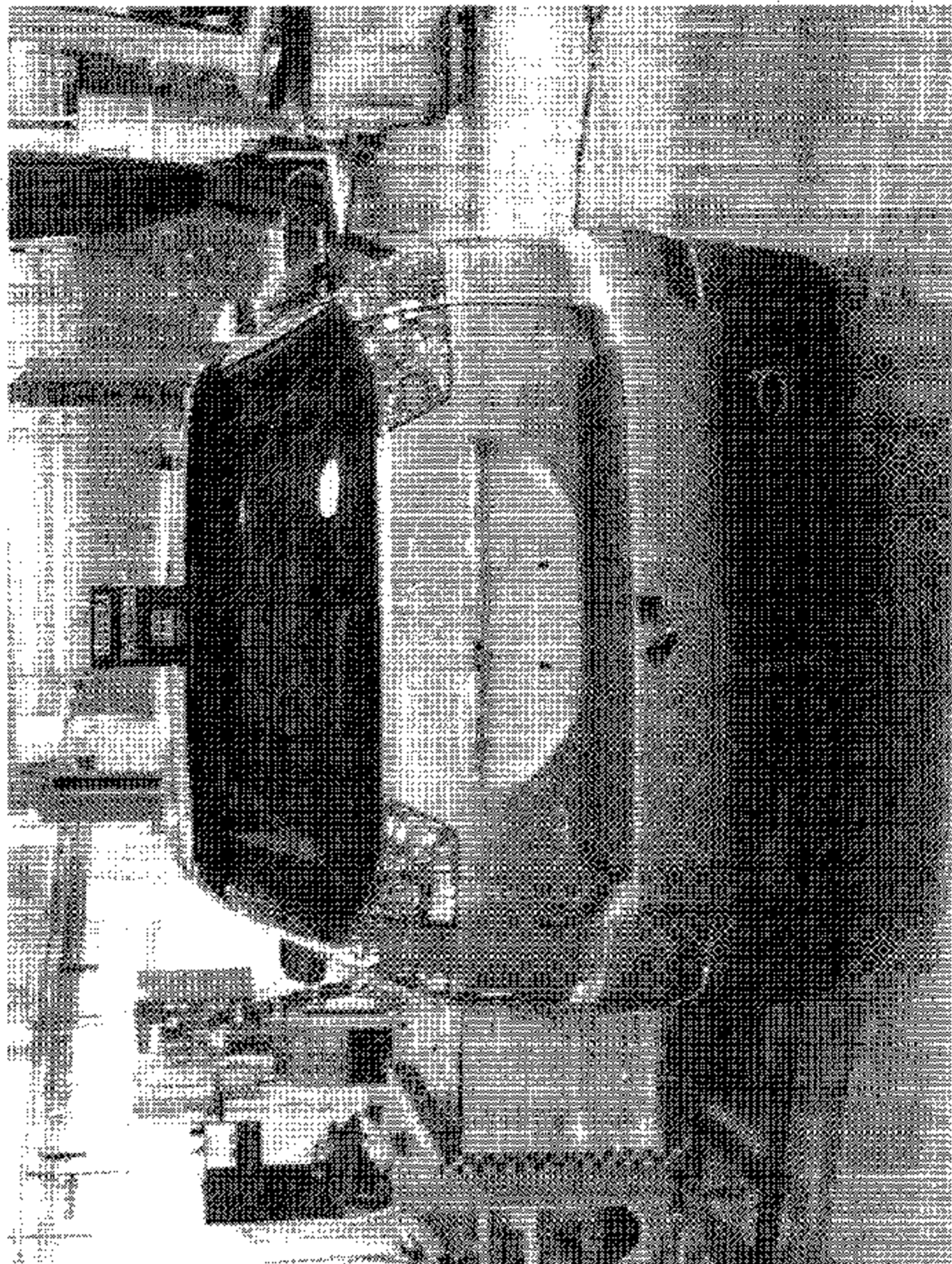


Figure A-5 Pre-Test Rear View of Test Vehicle

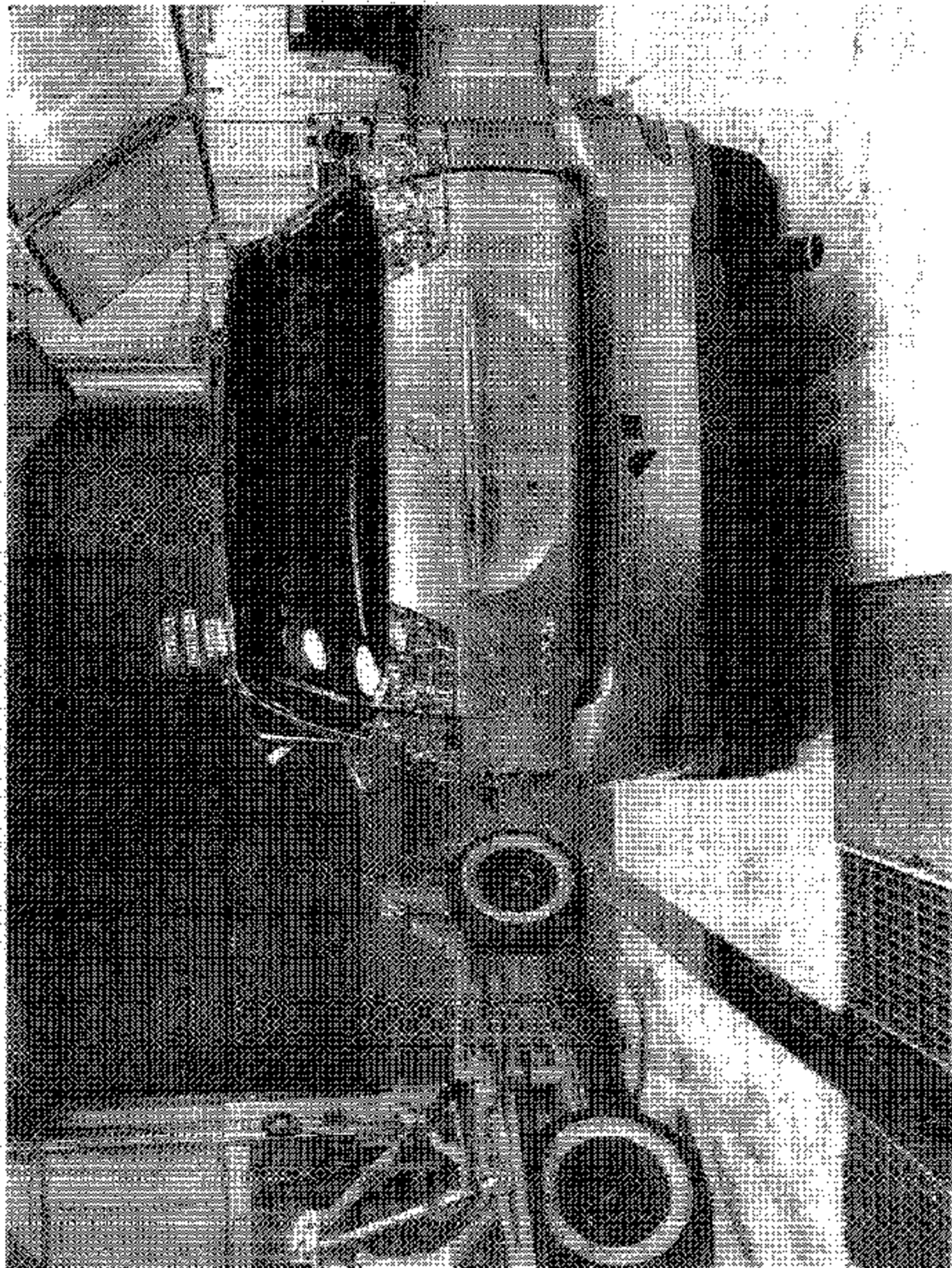


Figure A-6 Post-Test Rear View of Test Vehicle

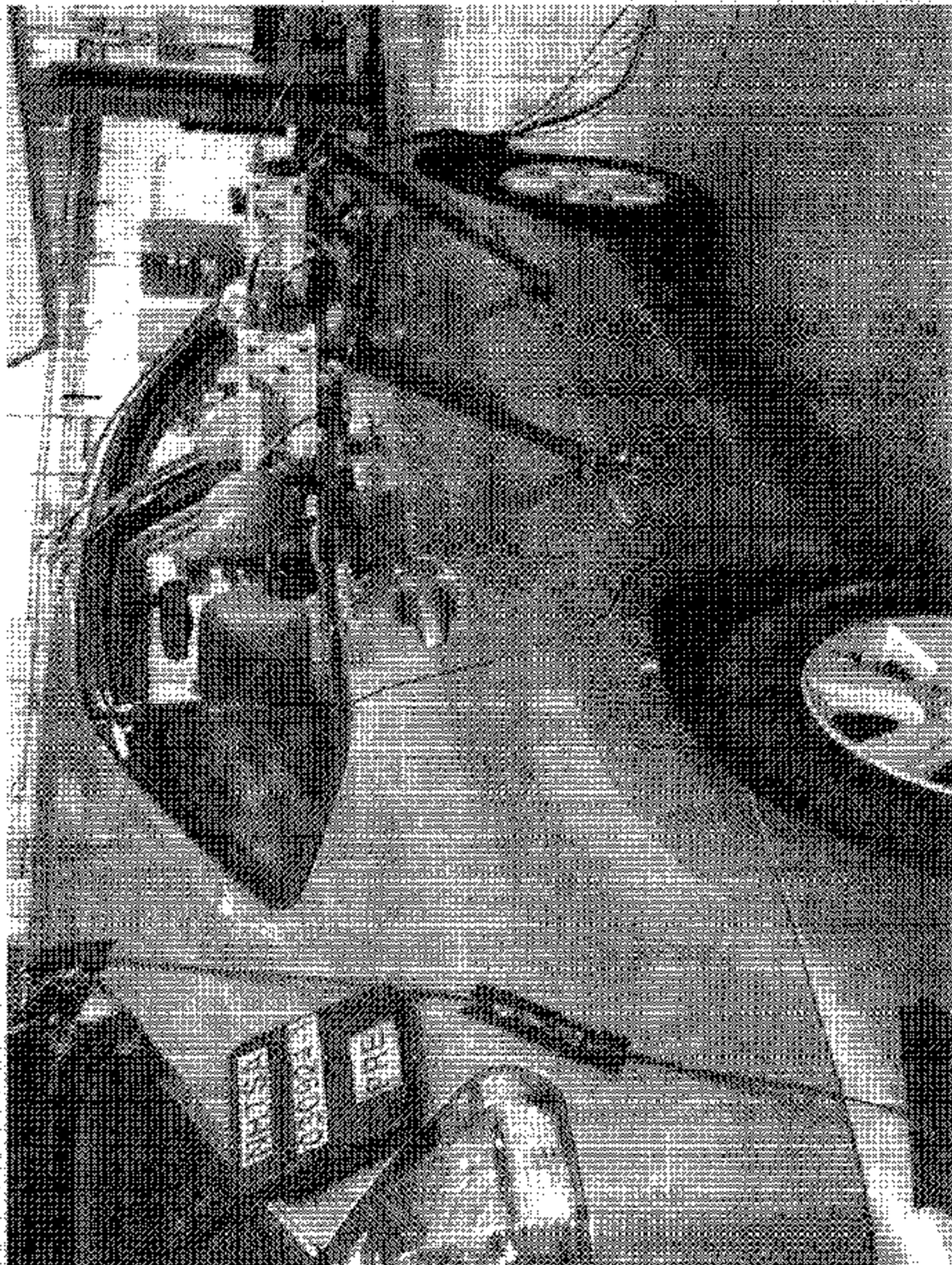


Figure A-7 Pre-Test Right Rear View of Test Vehicle



Figure A-8 Post-Test Right Rear View of Test Vehicle

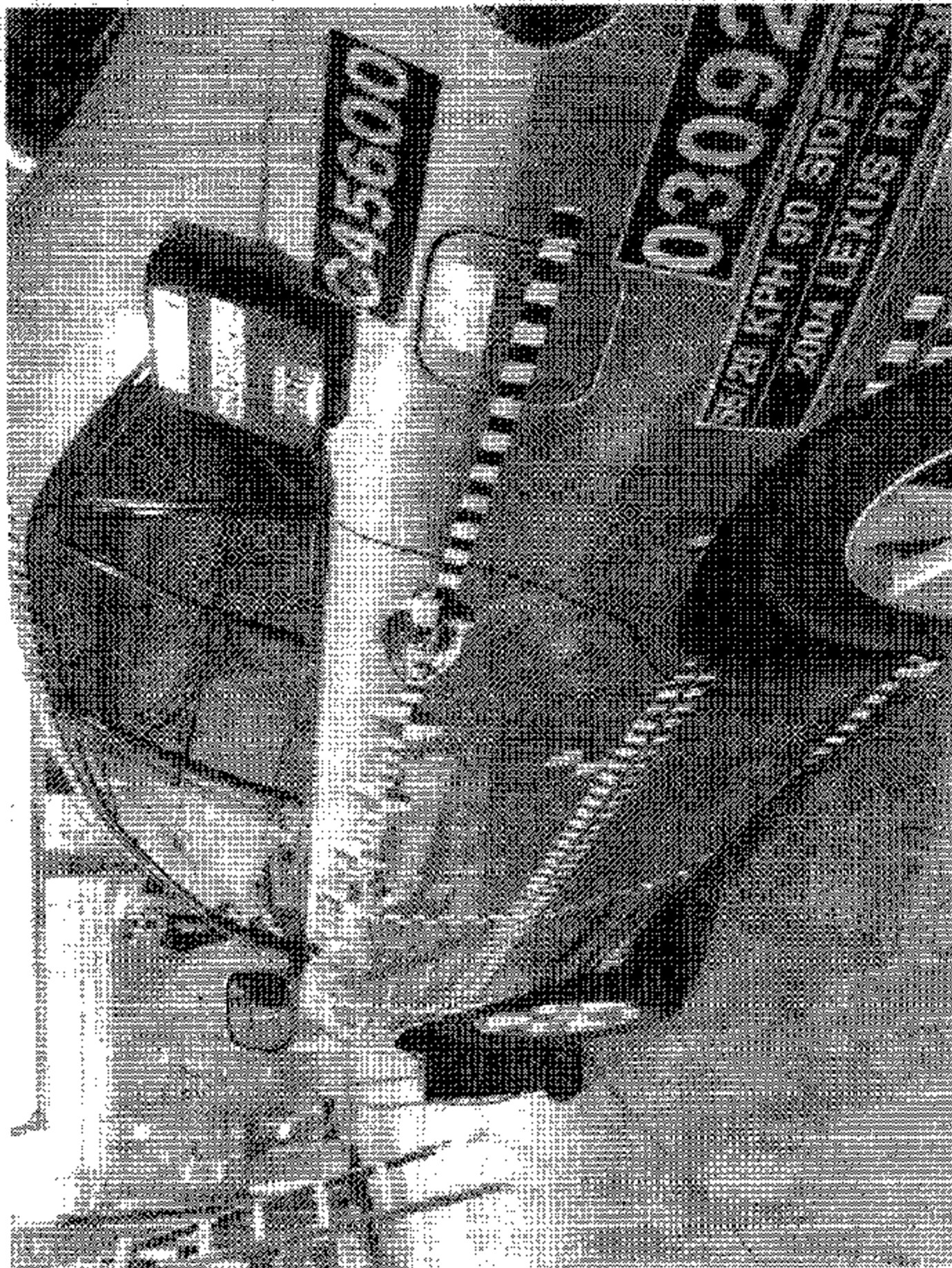


Figure A-9 Pre-Test Impacted Side Angled Door View

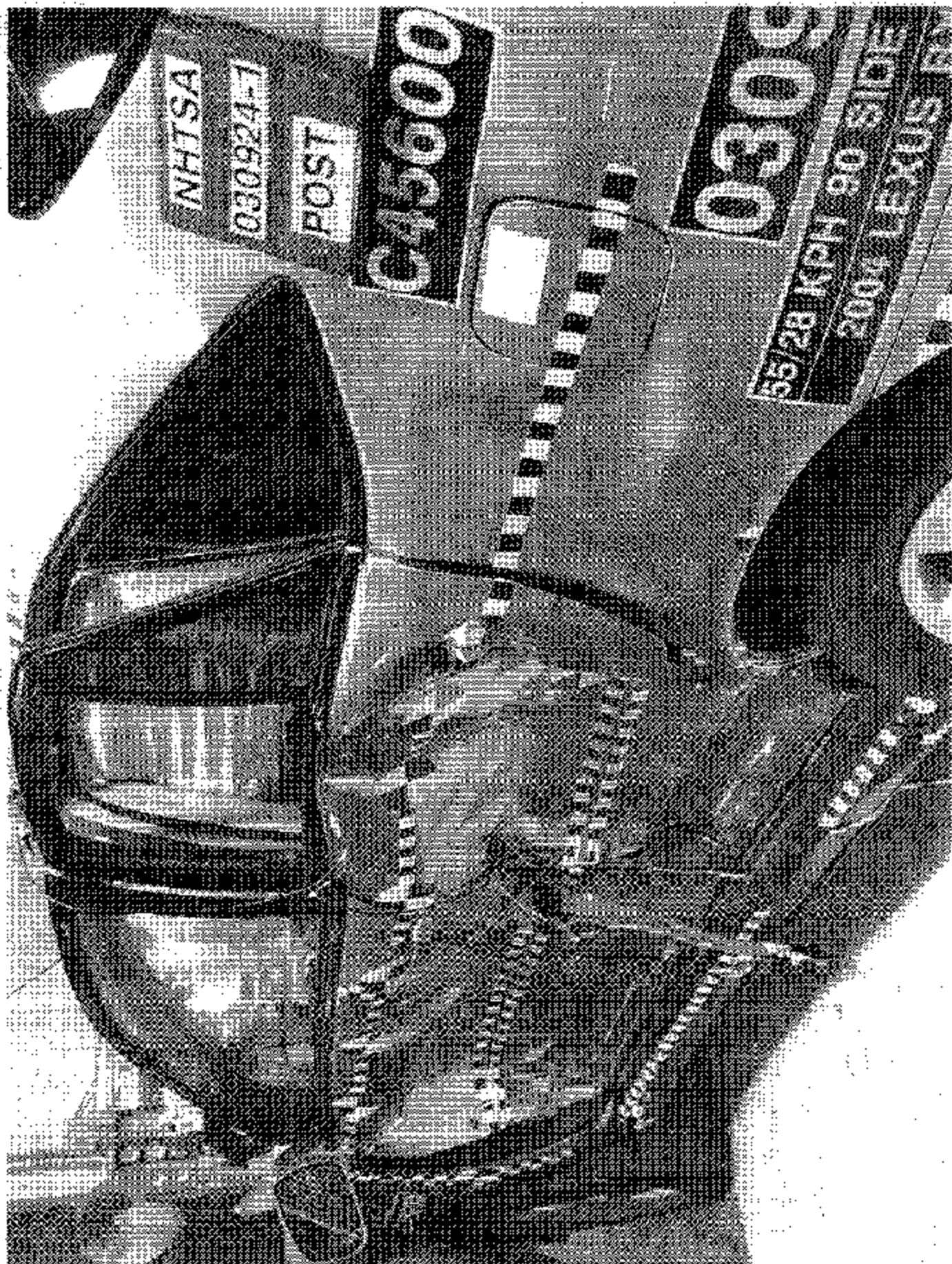


Figure A-10 Post-Test Impacted Side Angled Door View



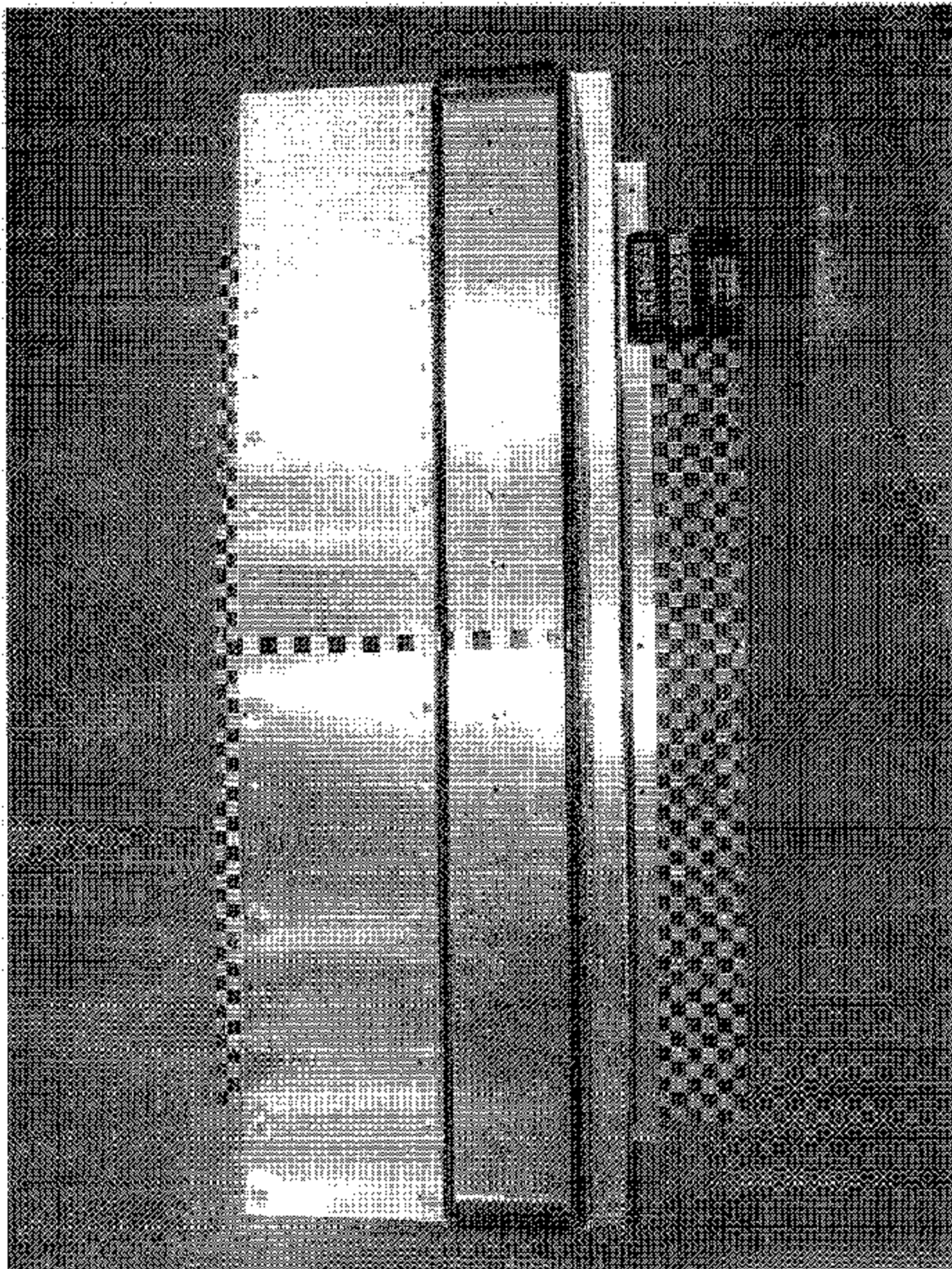


Figure A-11 Pre-Test Frontal View of Impactor Face

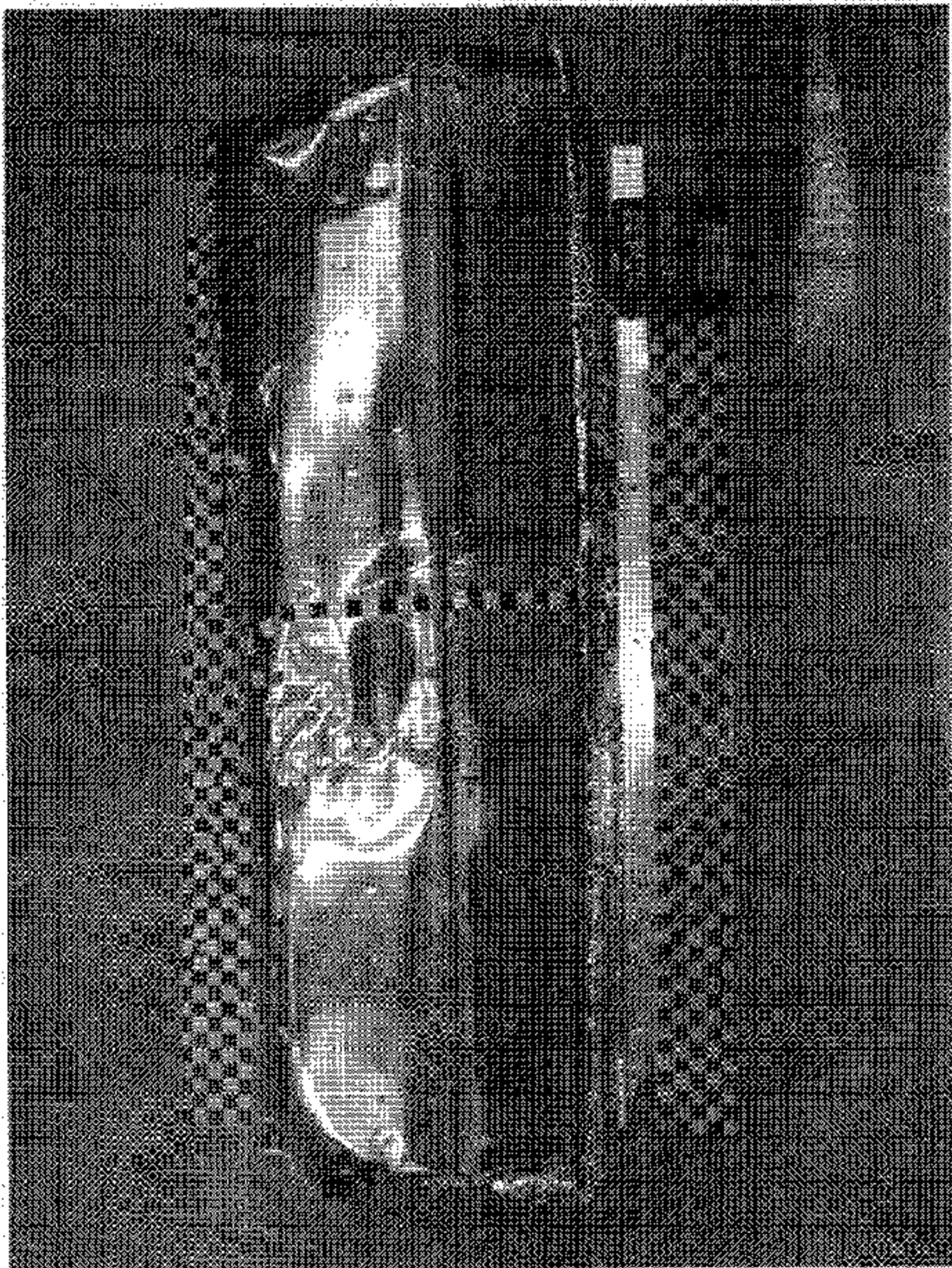


Figure A-12 Post-Test Frontal View of Impactor Face

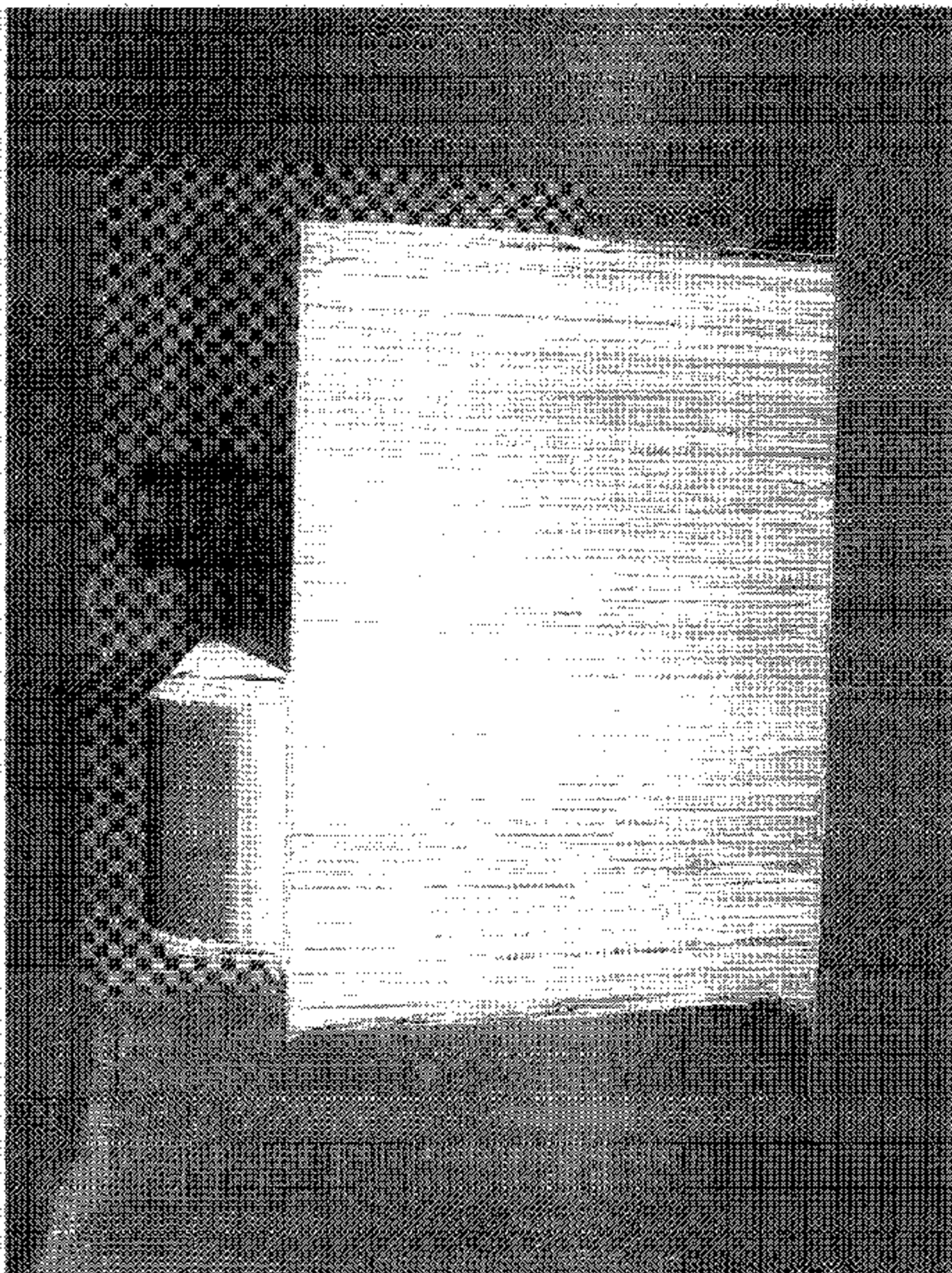


Figure A-13 Pre-Test Left Side View of Impactor Face

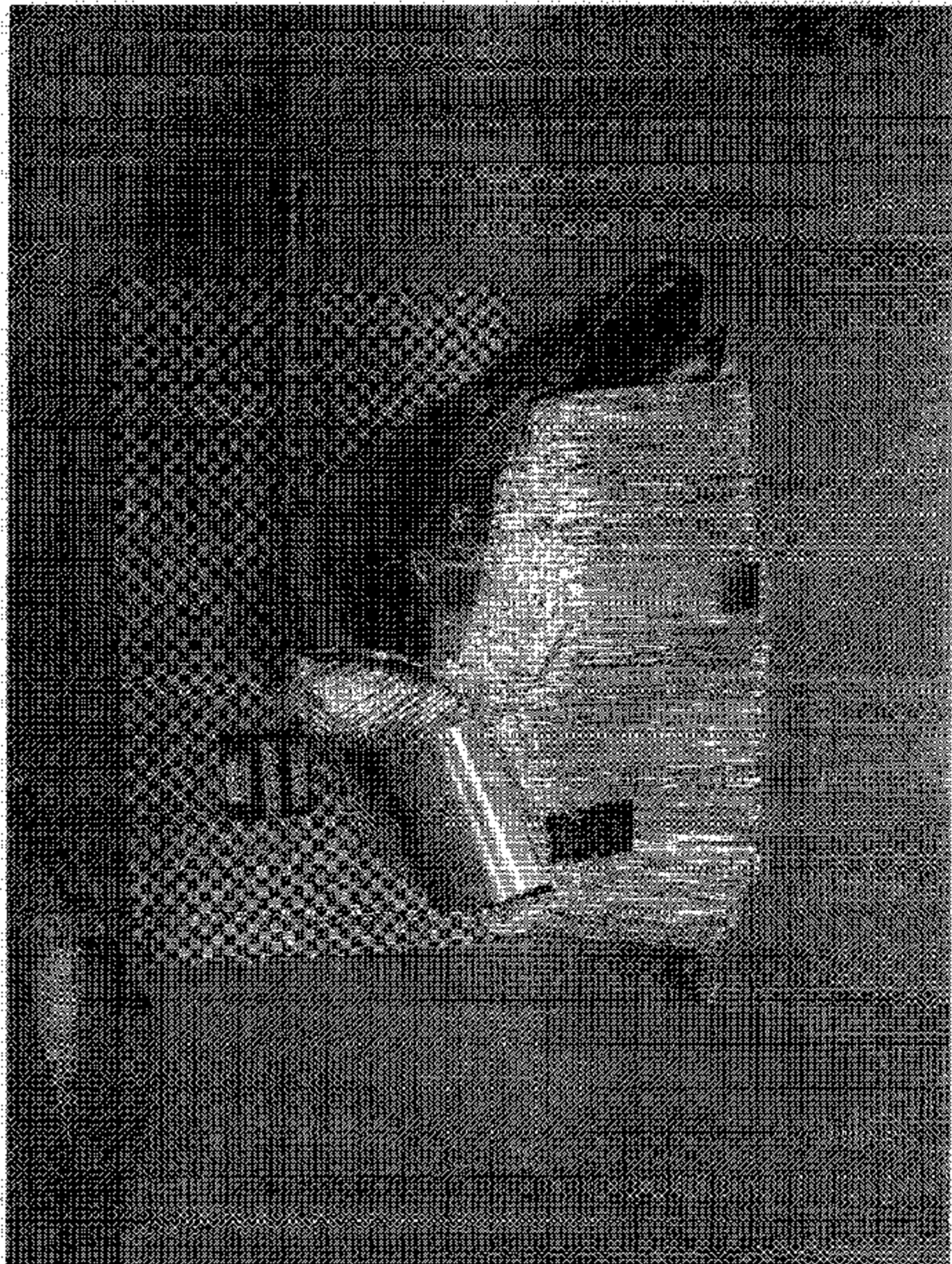


Figure A-14 Post-Test Left Side View of Impactor Face

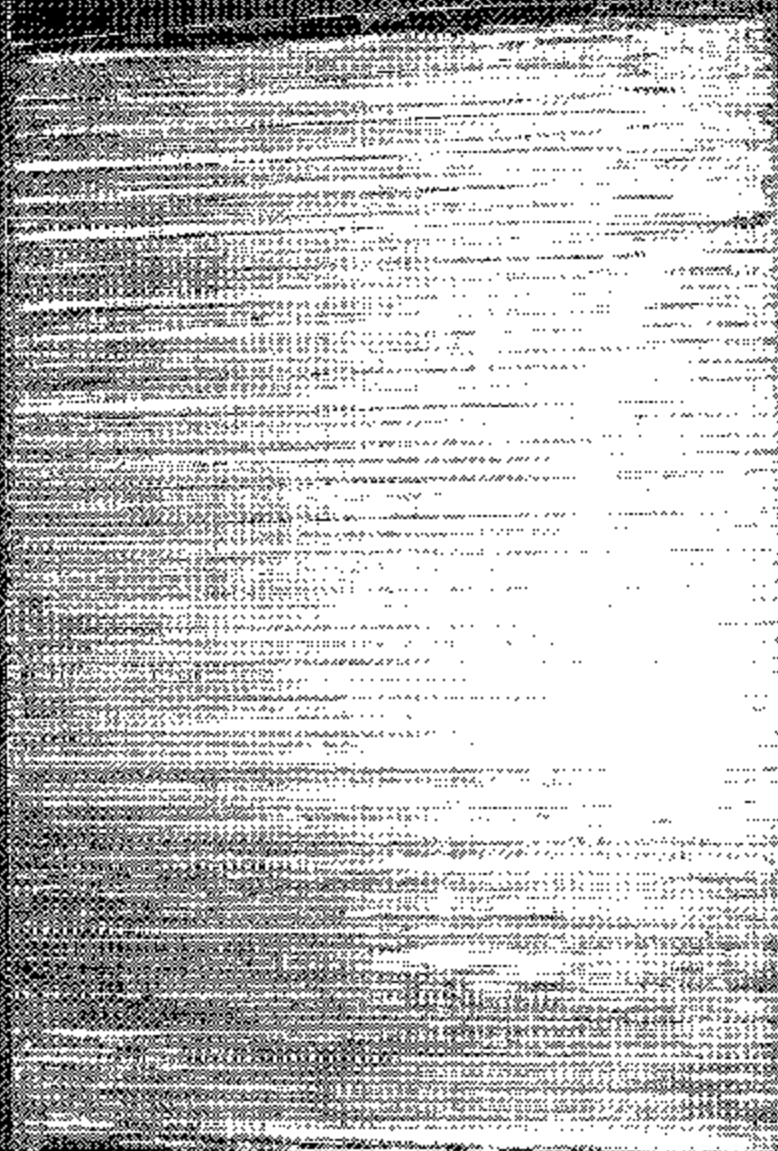


Figure A-15 Pre-Test Right Side View of Impactor Face

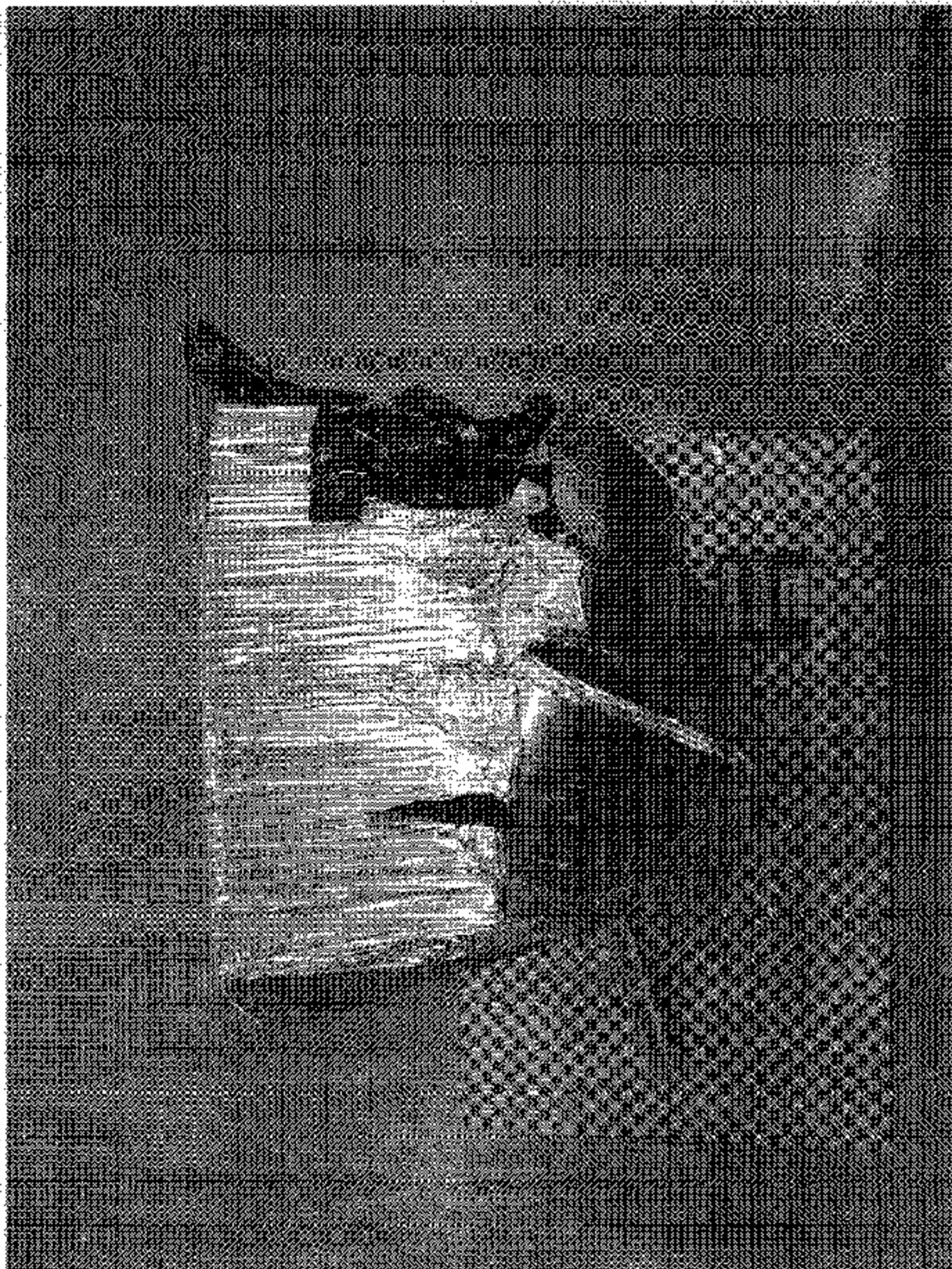


Figure A-16 Post-Test Right Side View of Impactor Face

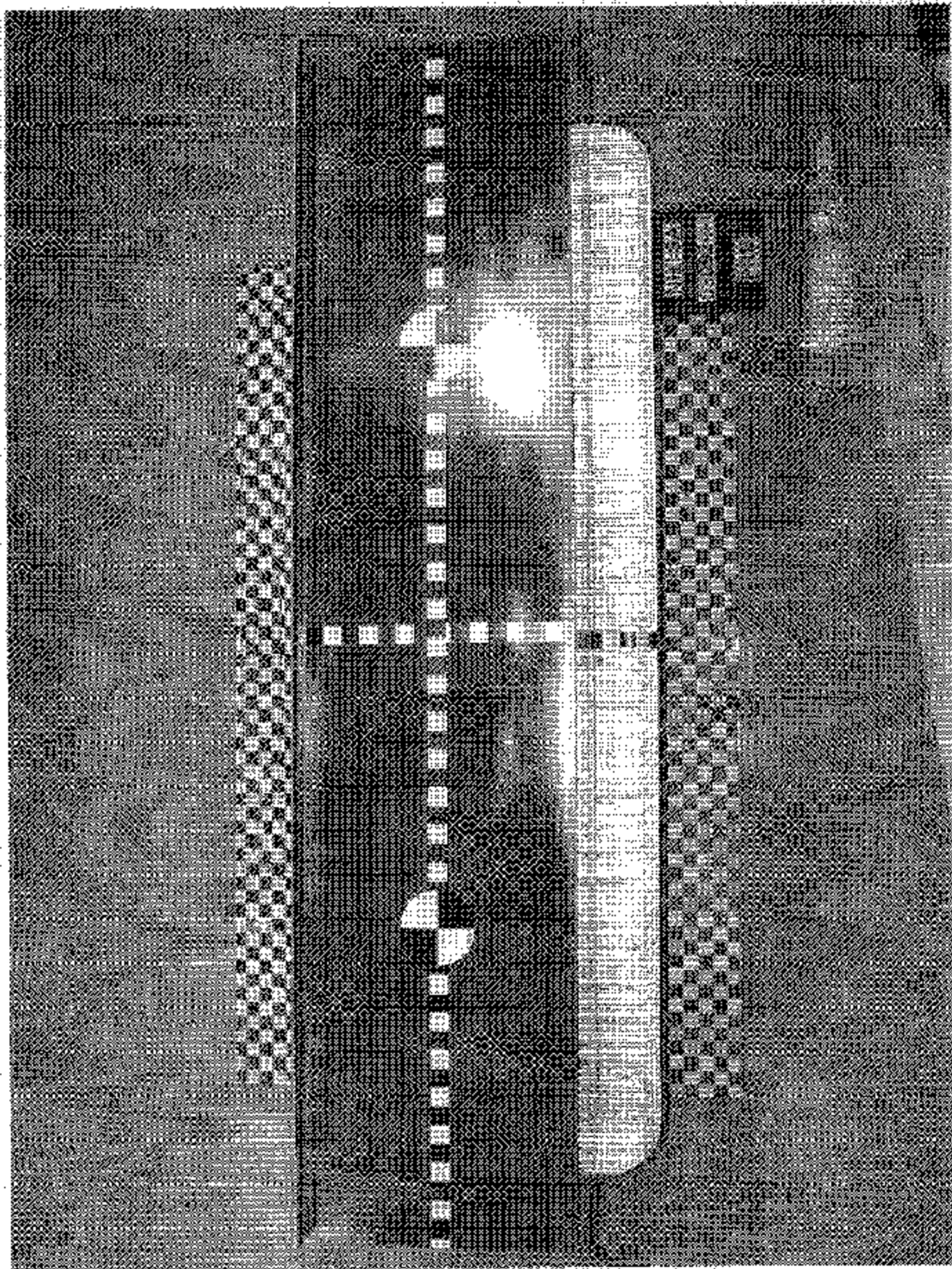


Figure A-17 Pre-Test Top View of Impactor Face

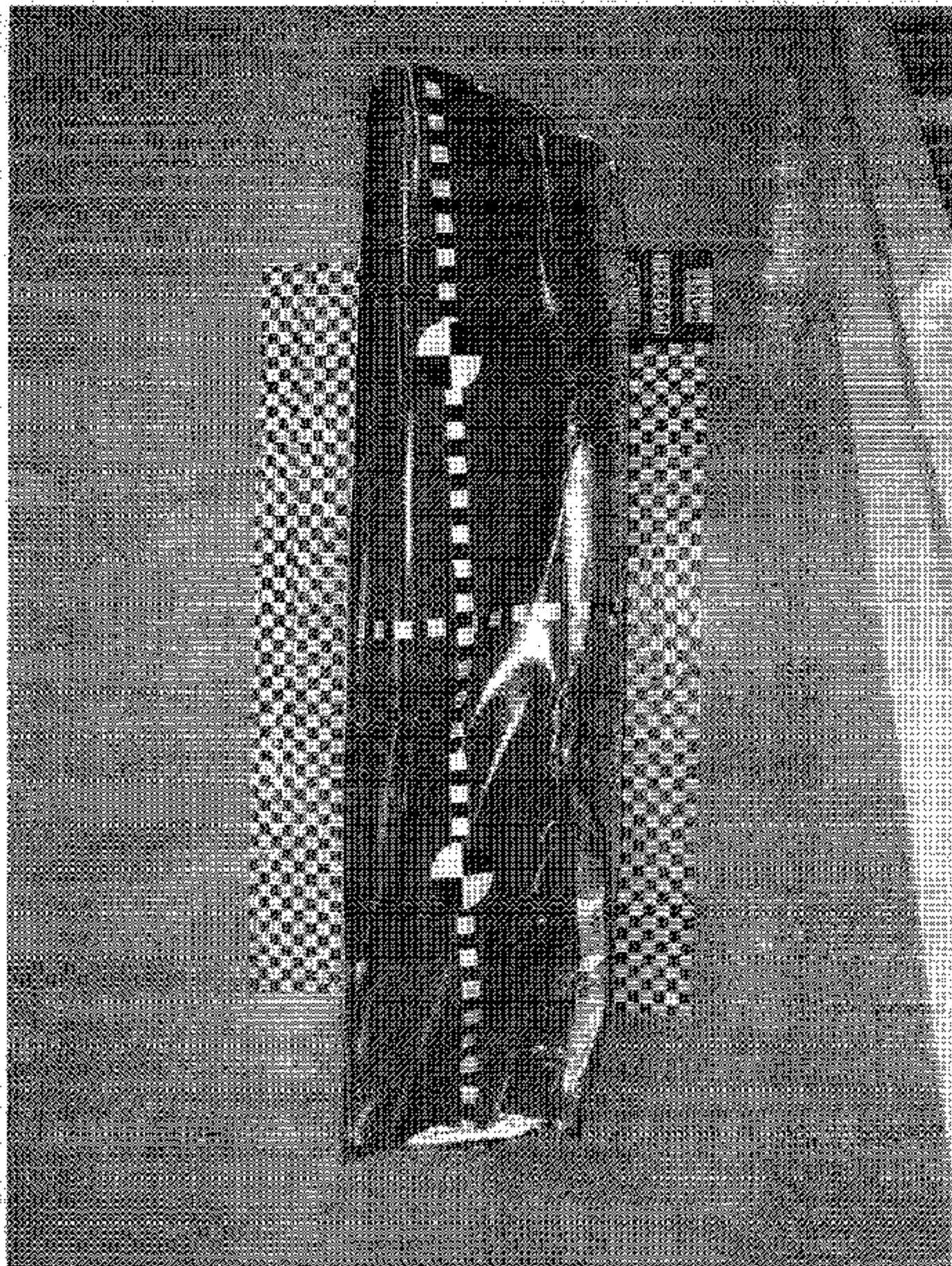


Figure A-18 Post-Test Top View of Impactor Face



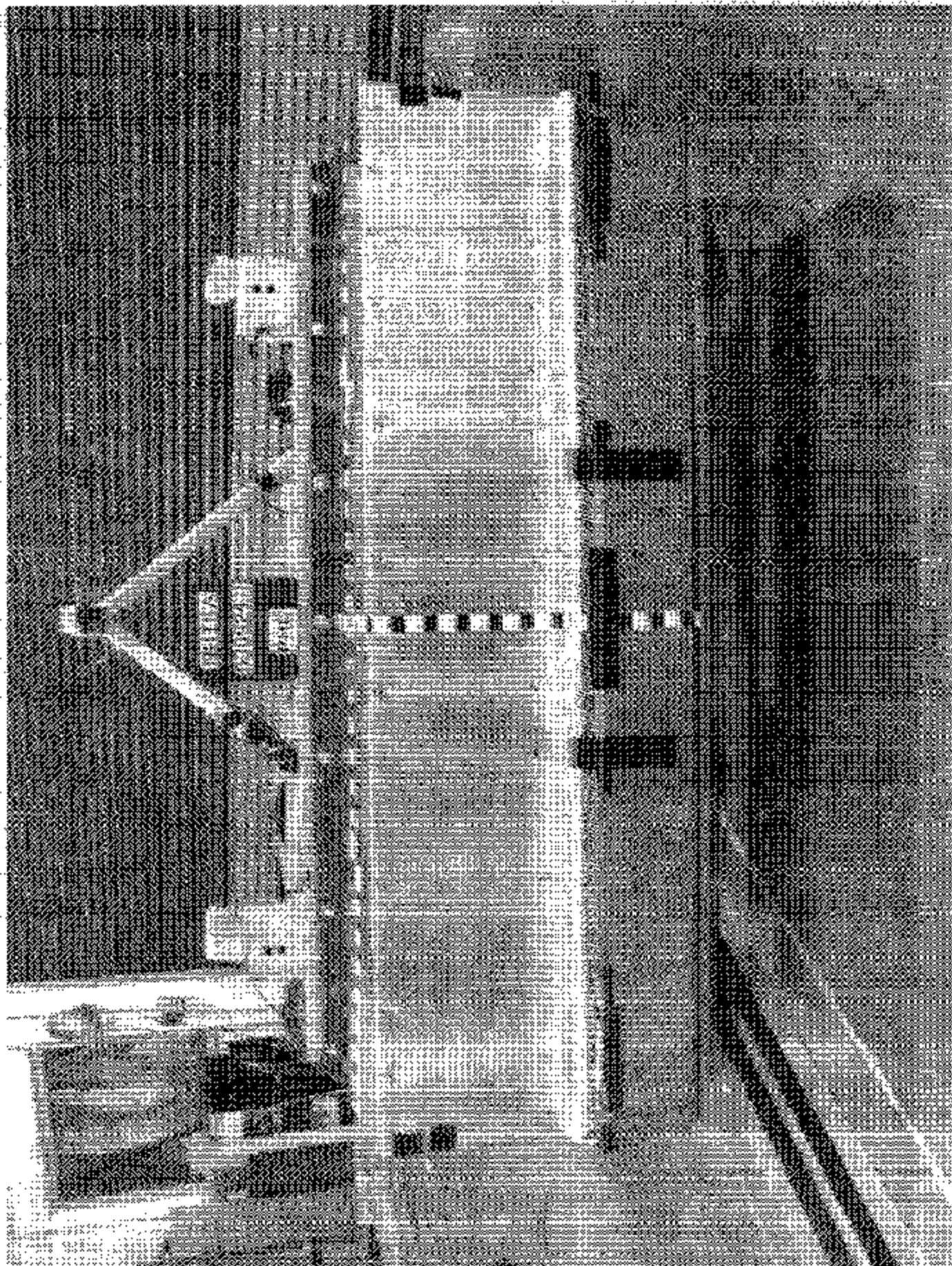


Figure A-19 Pre-Test View of MDB Showing Contact Switches in Place

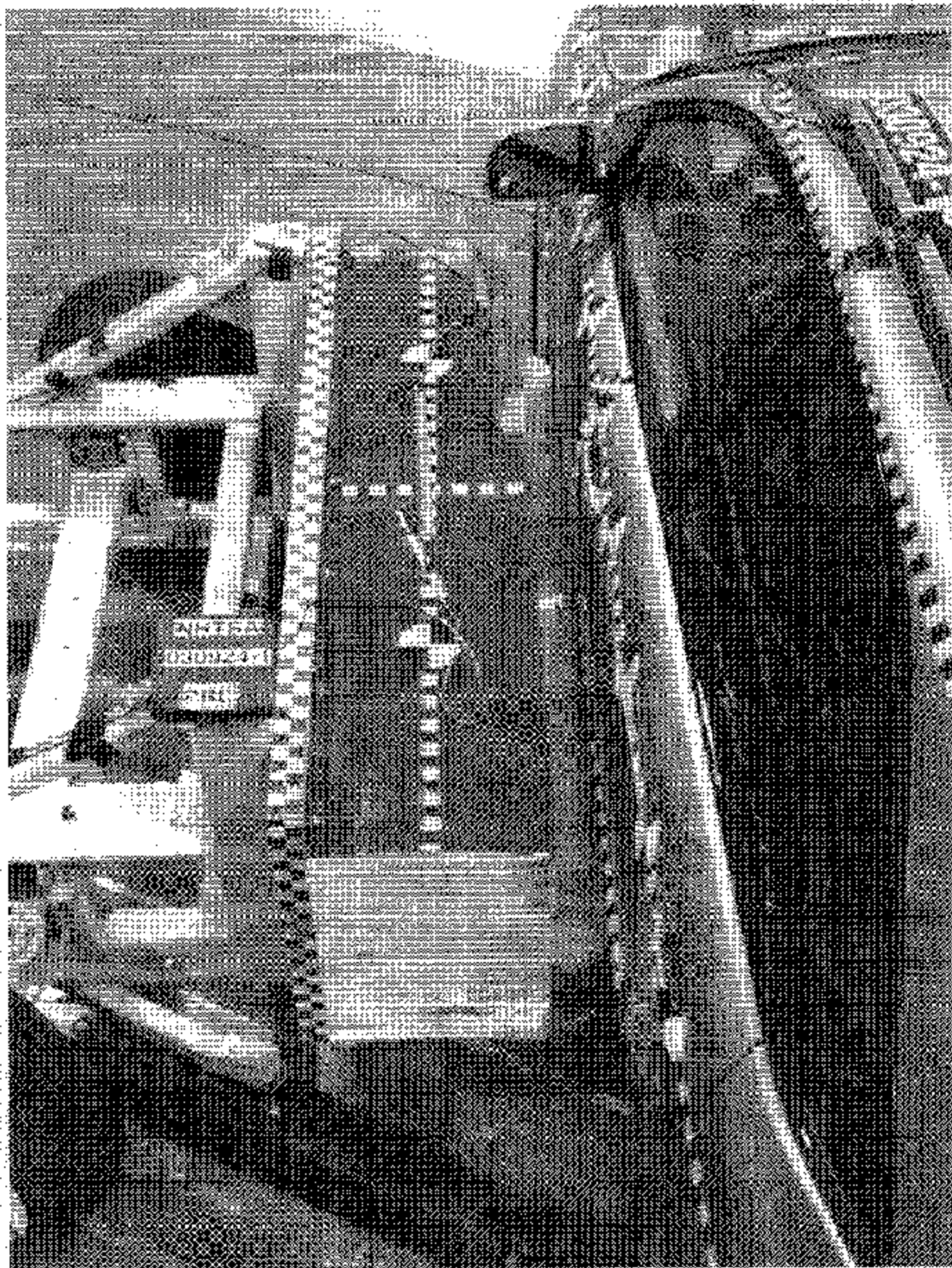


Figure A-20 Pre-Test Overhead View of MDB Aligned with Vehicle

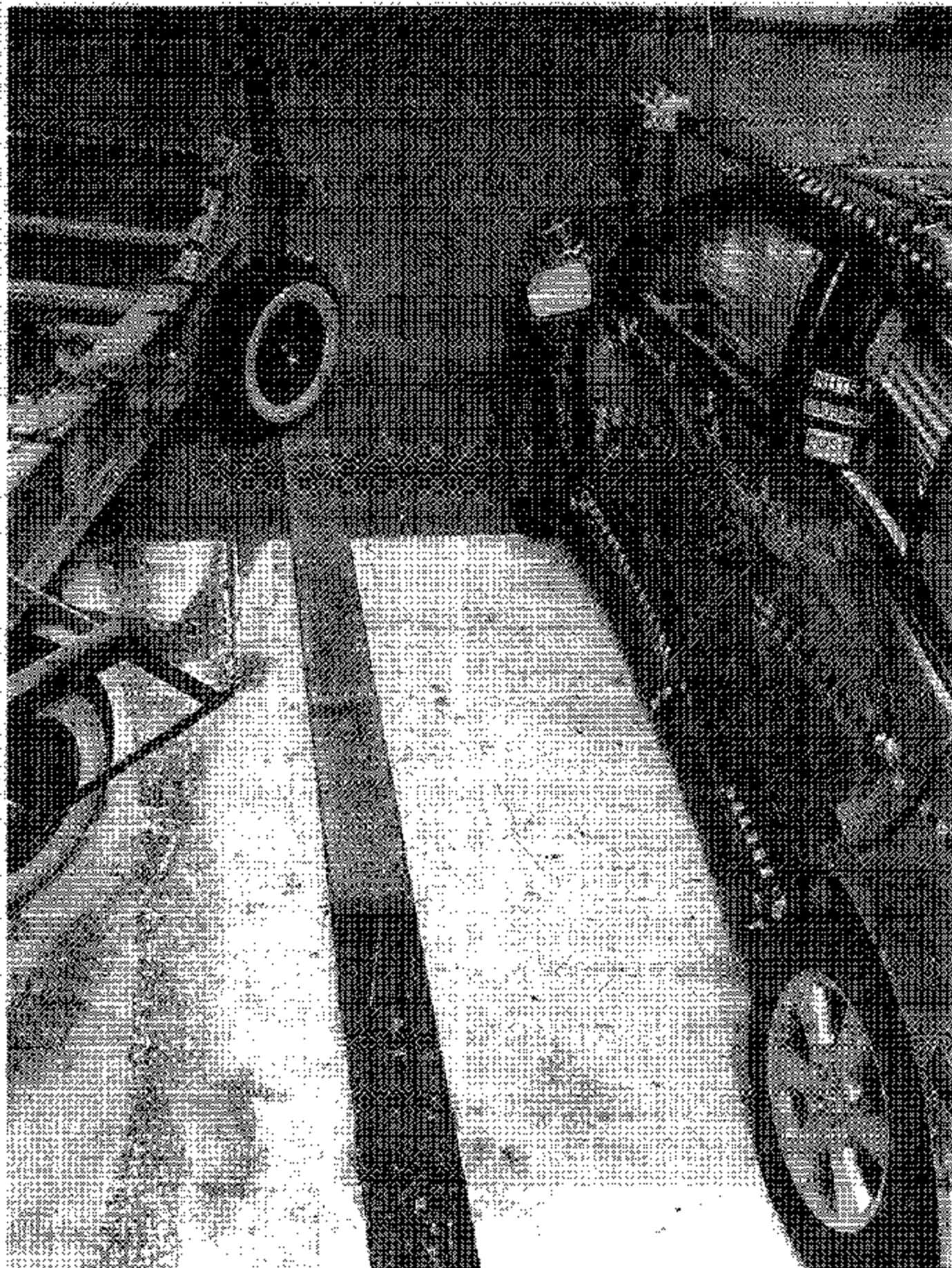


Figure A-21 Post-Test Overhead View of MDB and Vehicle

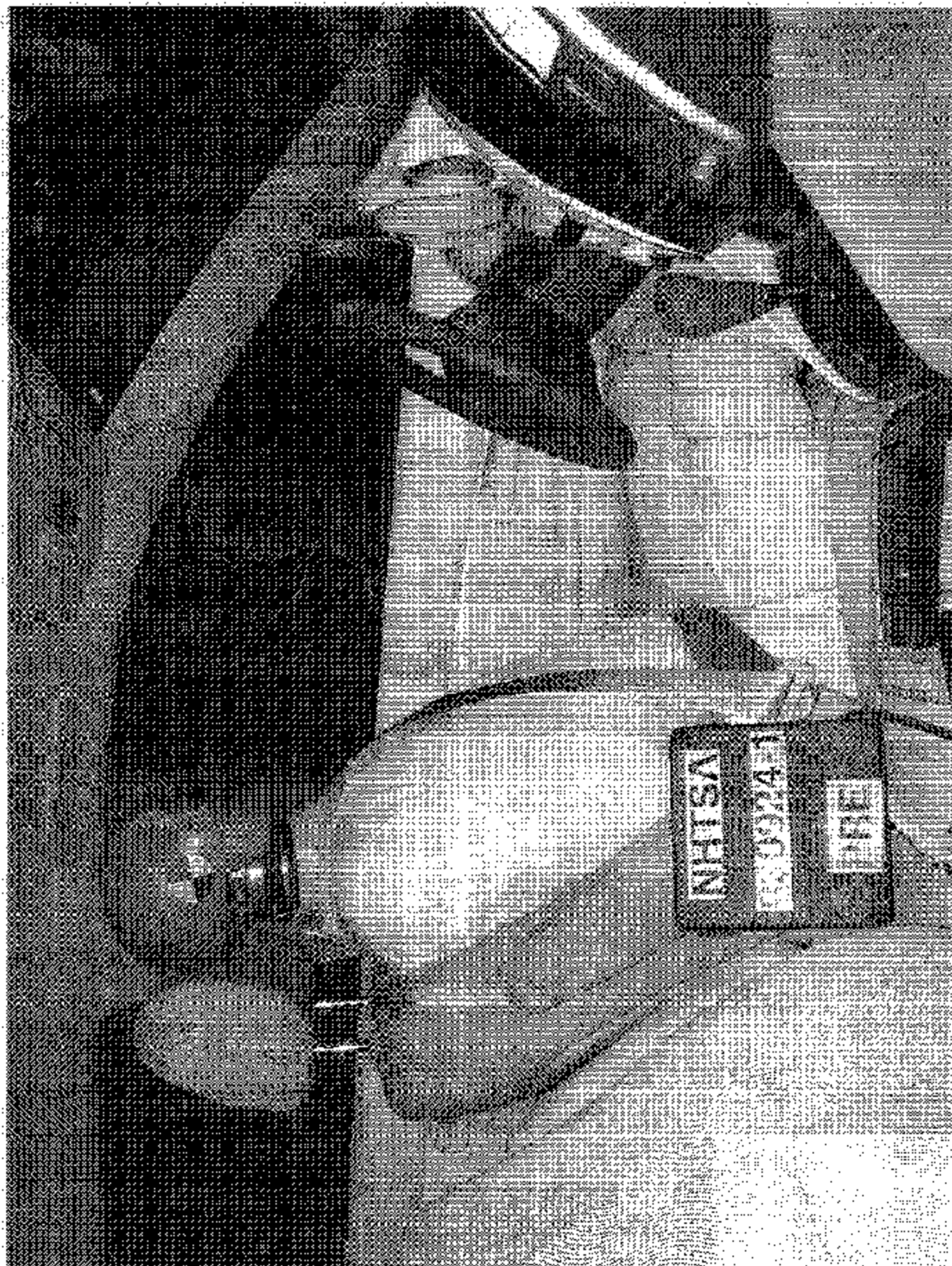


Figure A-22 Pre-Test Right Occupant Compartment View of Front SID Hill



Figure A-23 Post-Test Right Occupant Compartment View of Front SID HMI

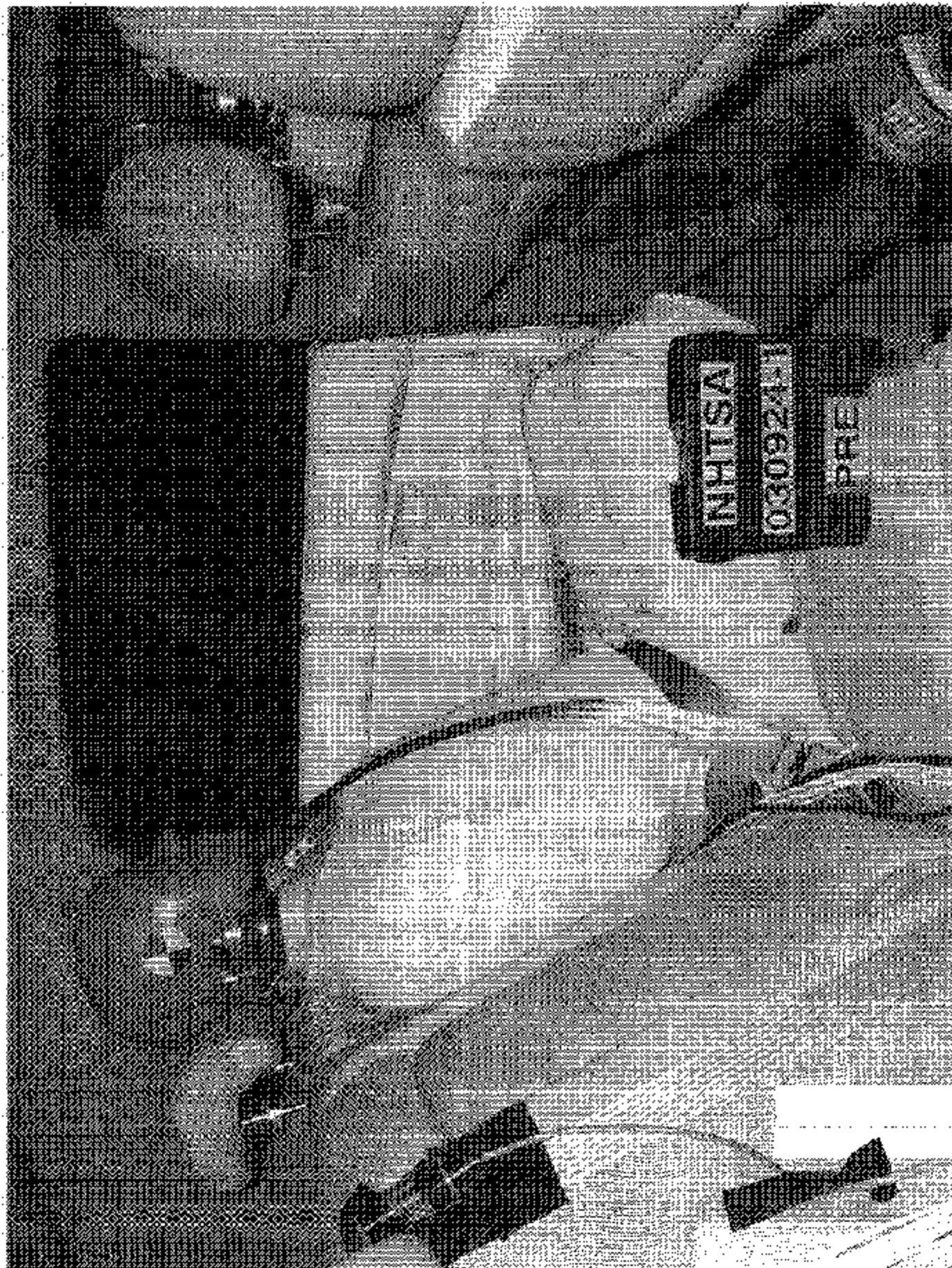


Figure A-24 Pre-Test Right Occupant Compartment View of Rear SID Hill

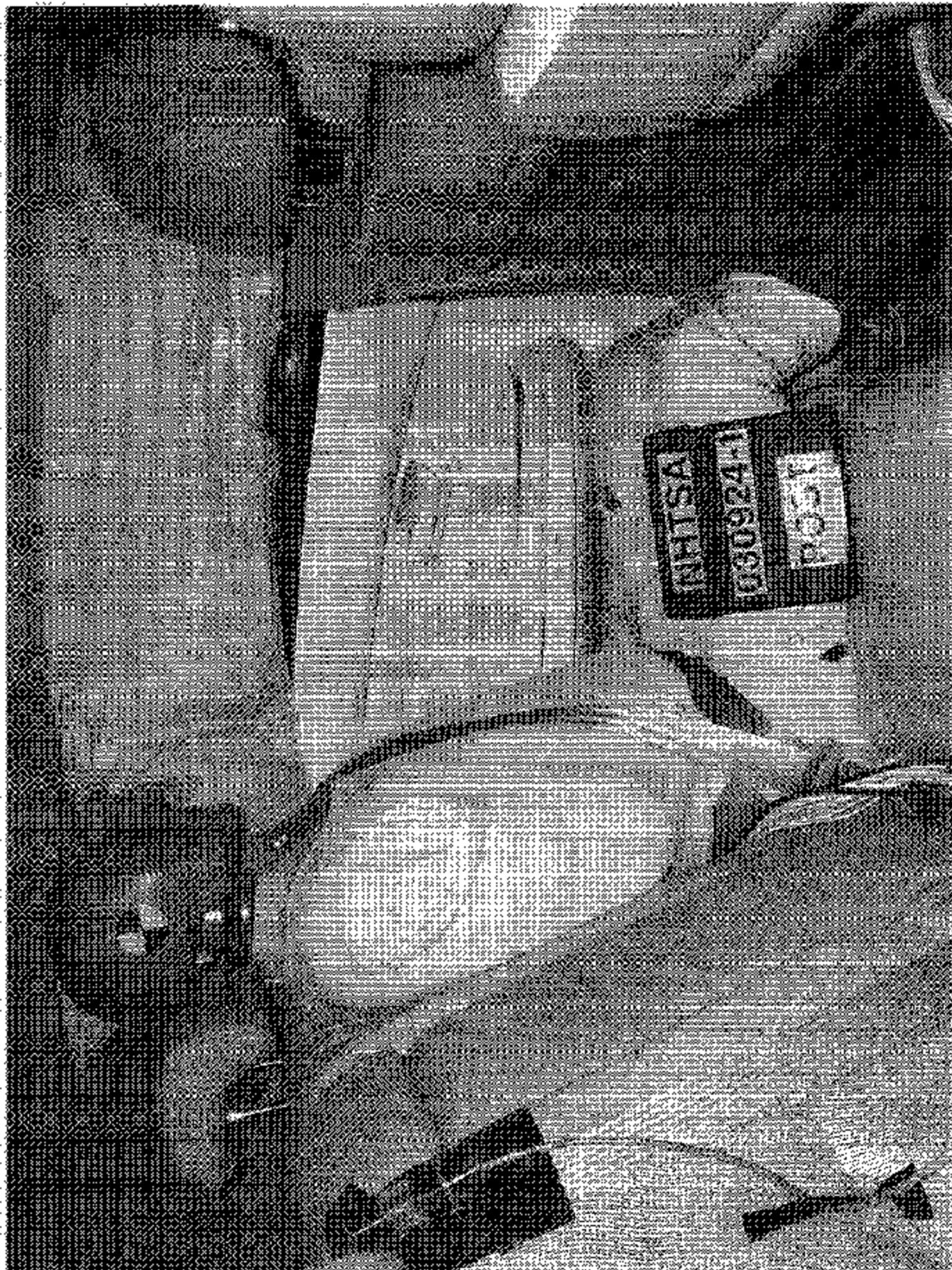


Figure A-25 Post-Test Right Occupant Compartment View of Rear STD HIII

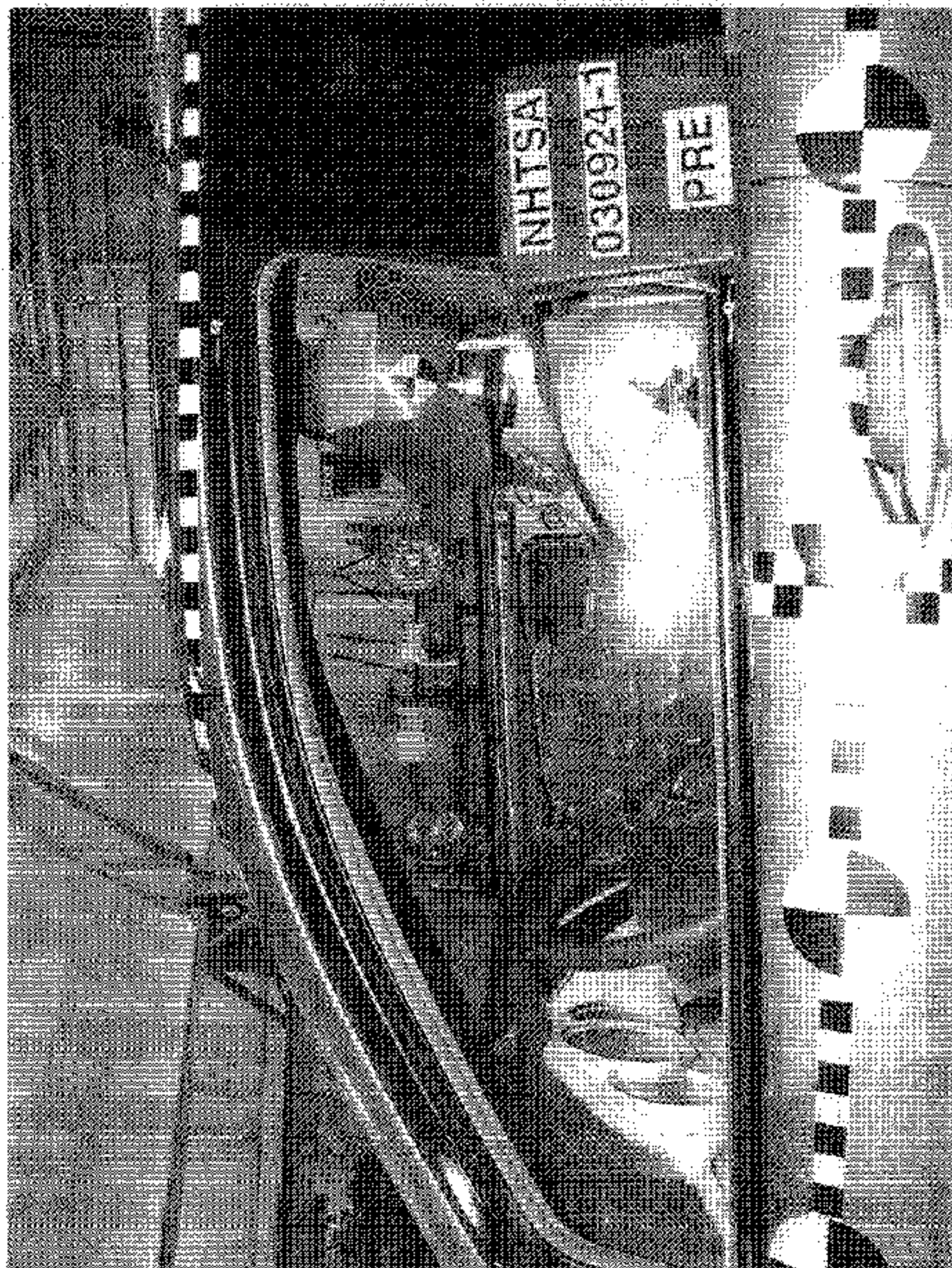


Figure A-26 Pre-Test Left View of Front SID IIII



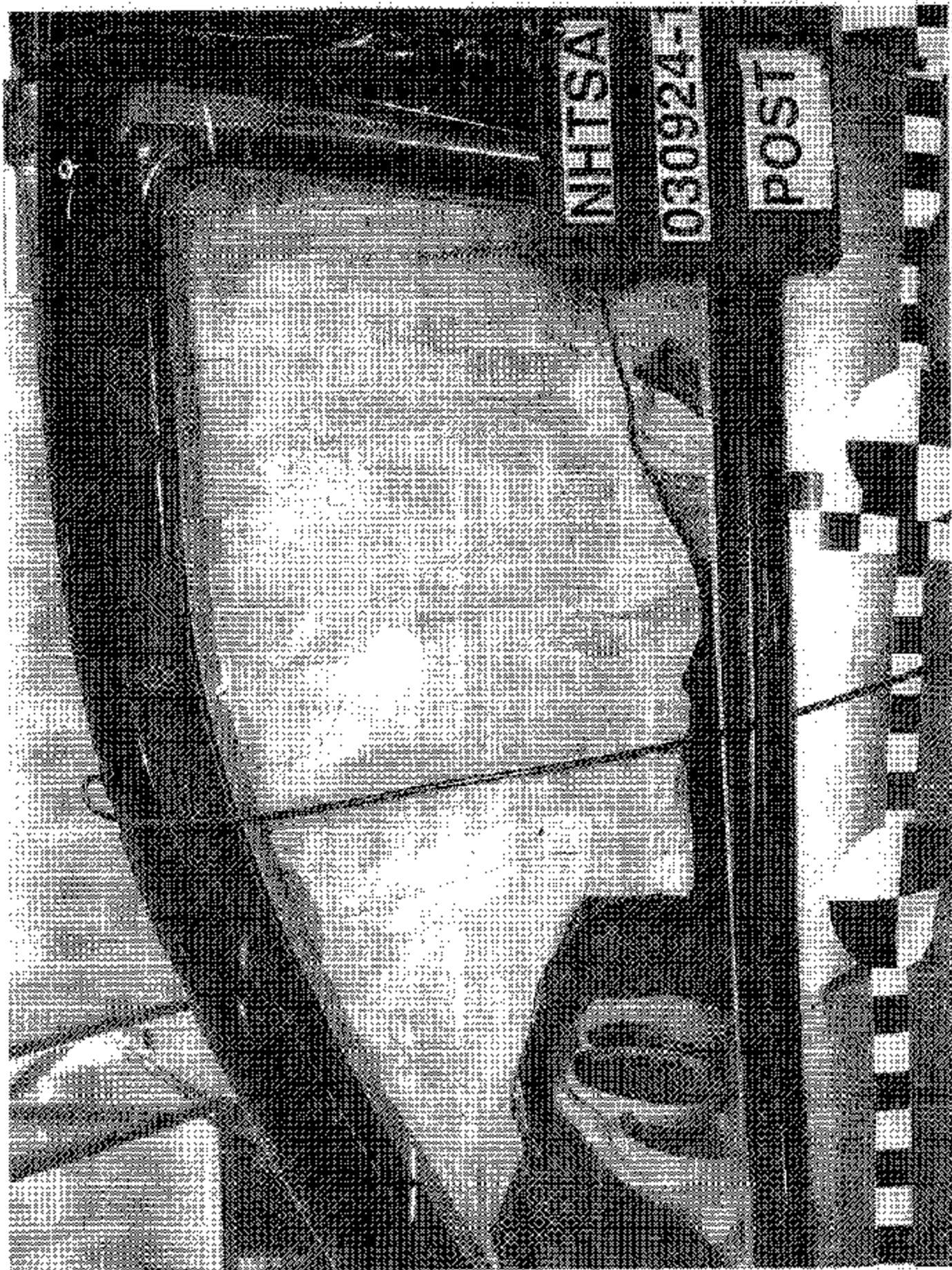


Figure A-27 Post-Test Left View of Front SID IIII

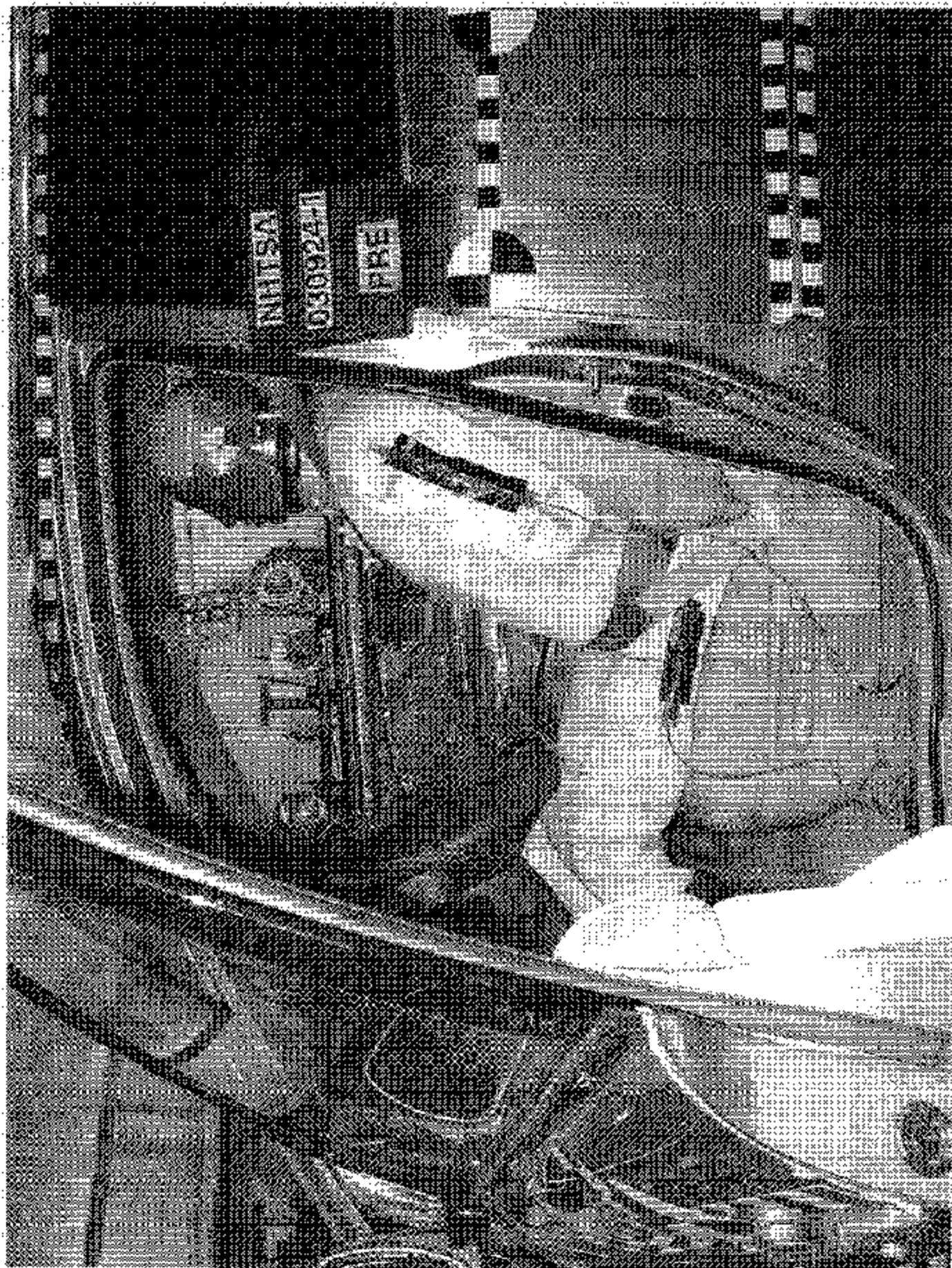


Figure A-28 Pre-Test Left View of Front SID III and Belt Position



Figure A-29 Pre-Test Front View of Front SID Hill and Door Clearance

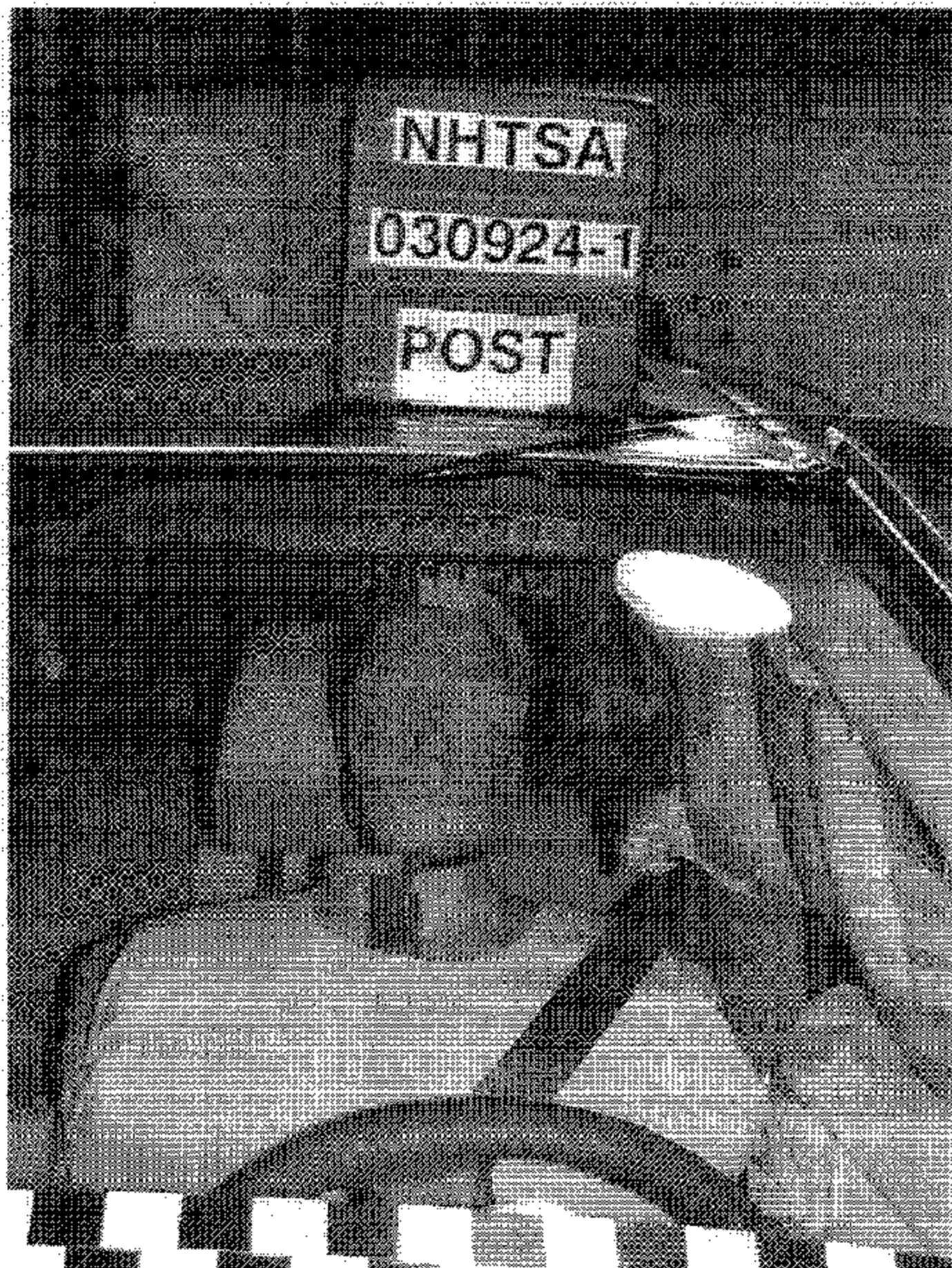


Figure A-30 Post-Test Front View of Front SID Hill and Door Clearance

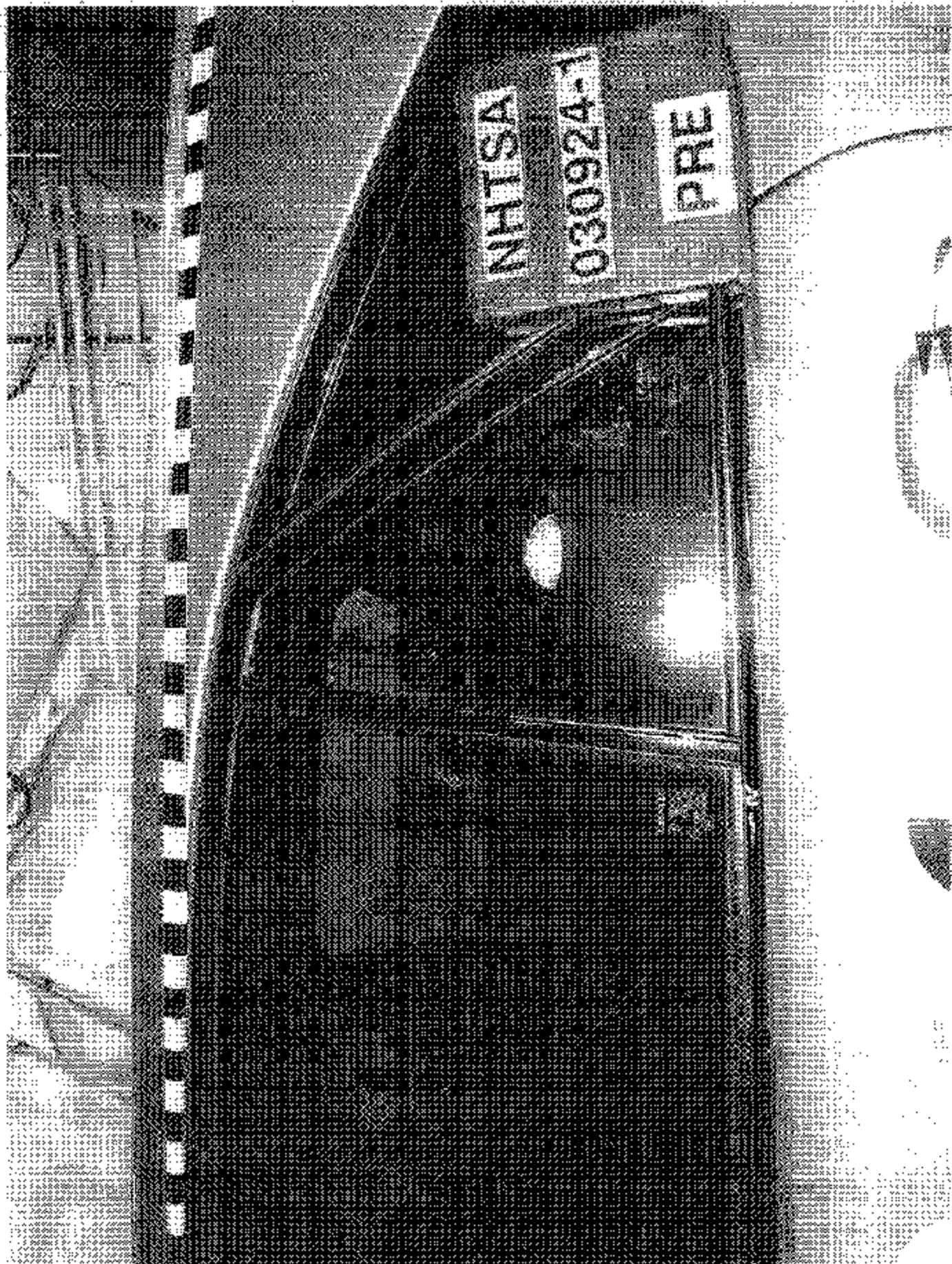


Figure A-31 Pre-Test Left View of Rear SID IIIII

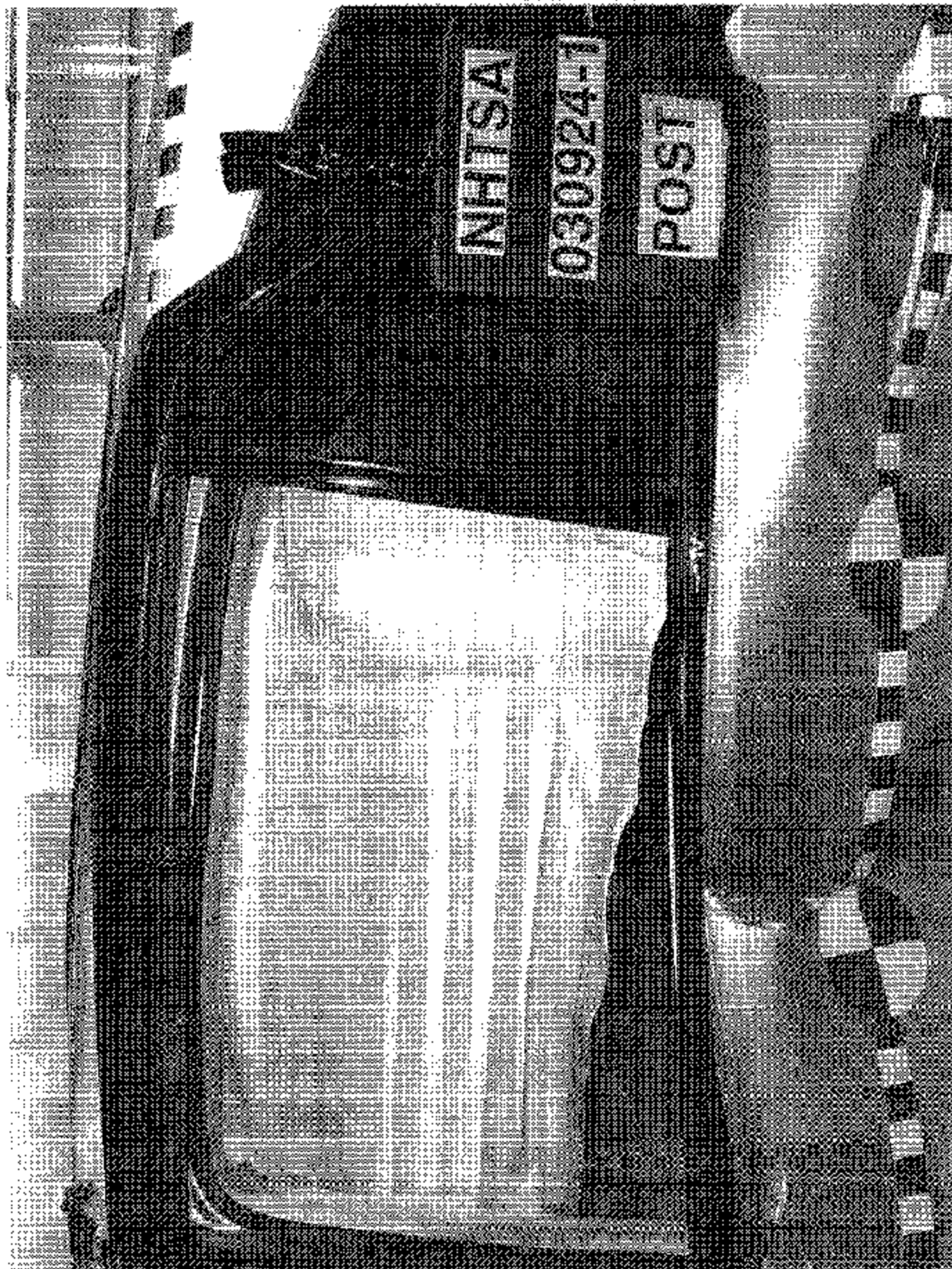


Figure A-32 Post-Test Left View of Rear SID HIT

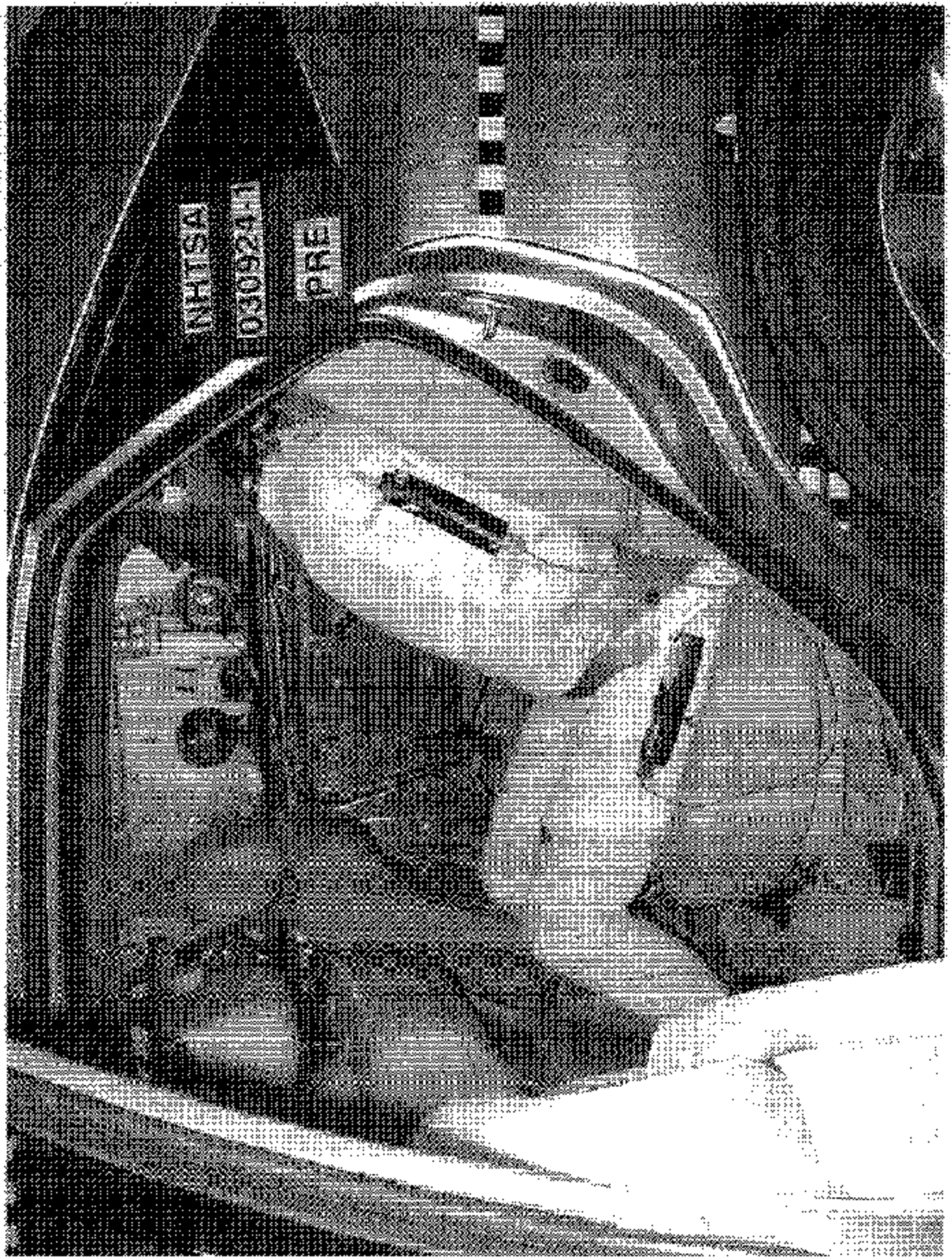


Figure A-33 Pre-Test Left View of Rear SID III and Belt Position



Figure A-34 Post-Test View of Rear SID Hill and Door Clearance



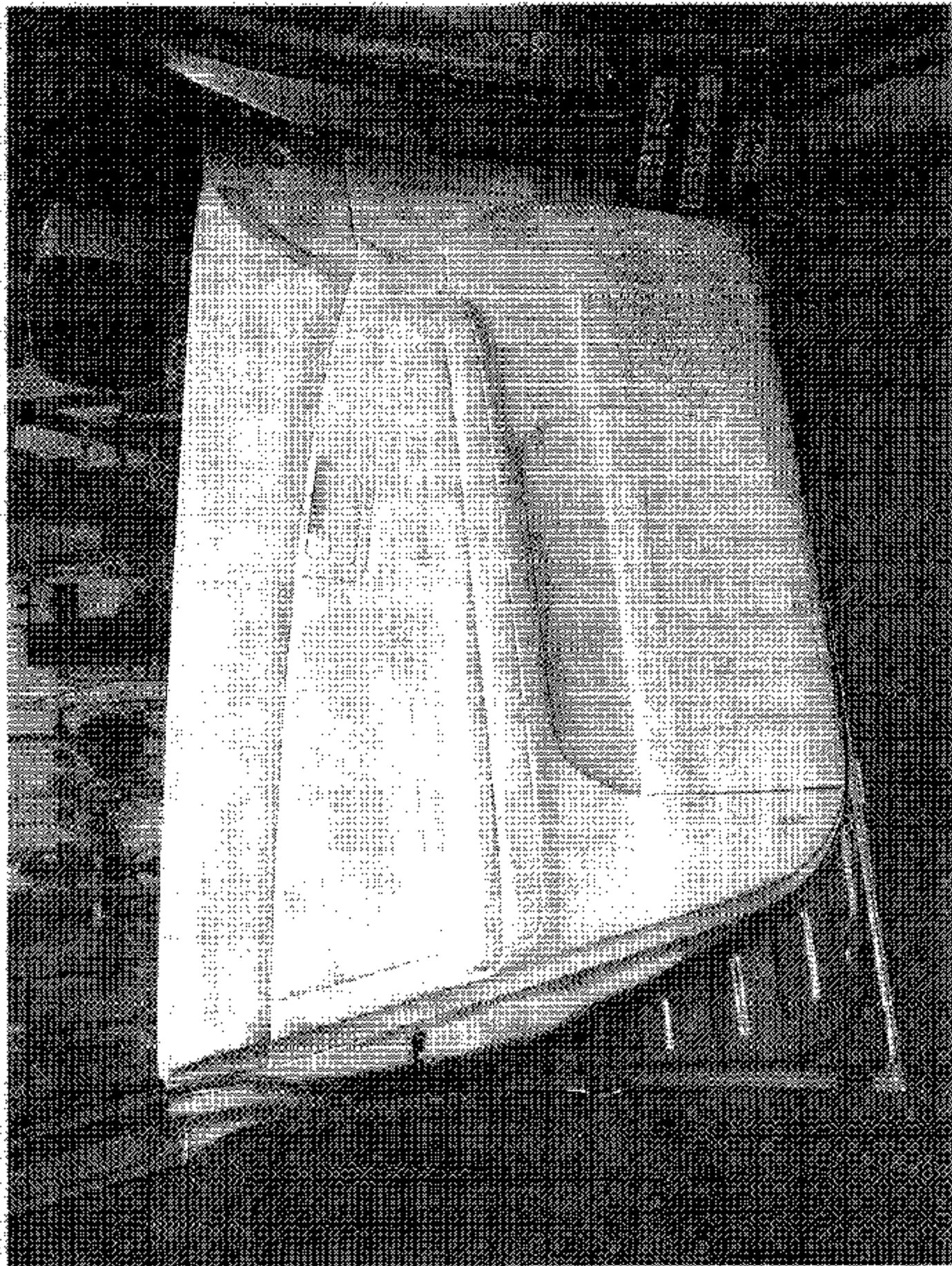


Figure A-35 Pre-Test Interior of Front Door

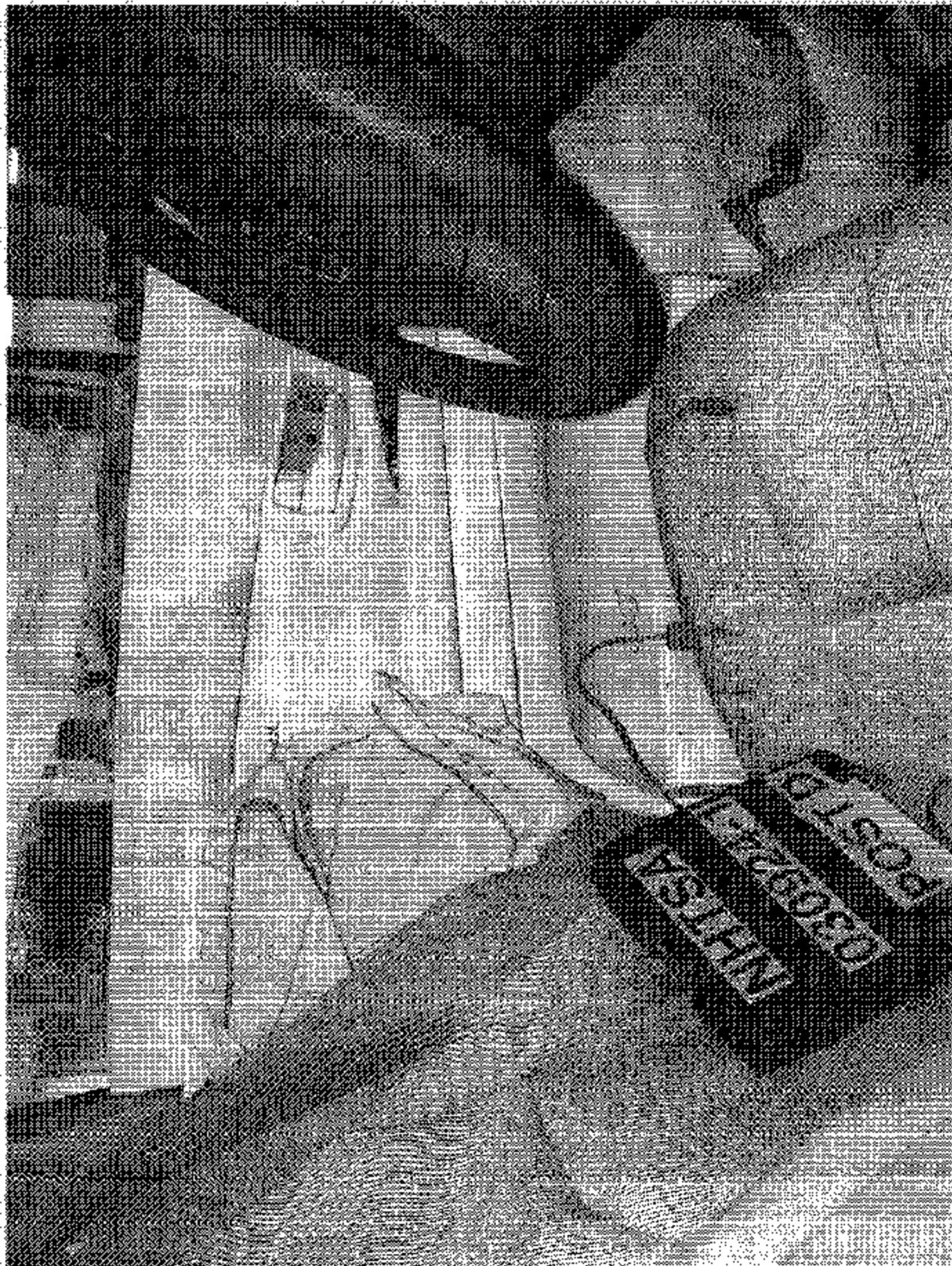


Figure A-36 Post-Test Interior of Front Door Showing SID HII Impact Locations



Figure A-37 Post-Test Front SID HMI Contact - View 1

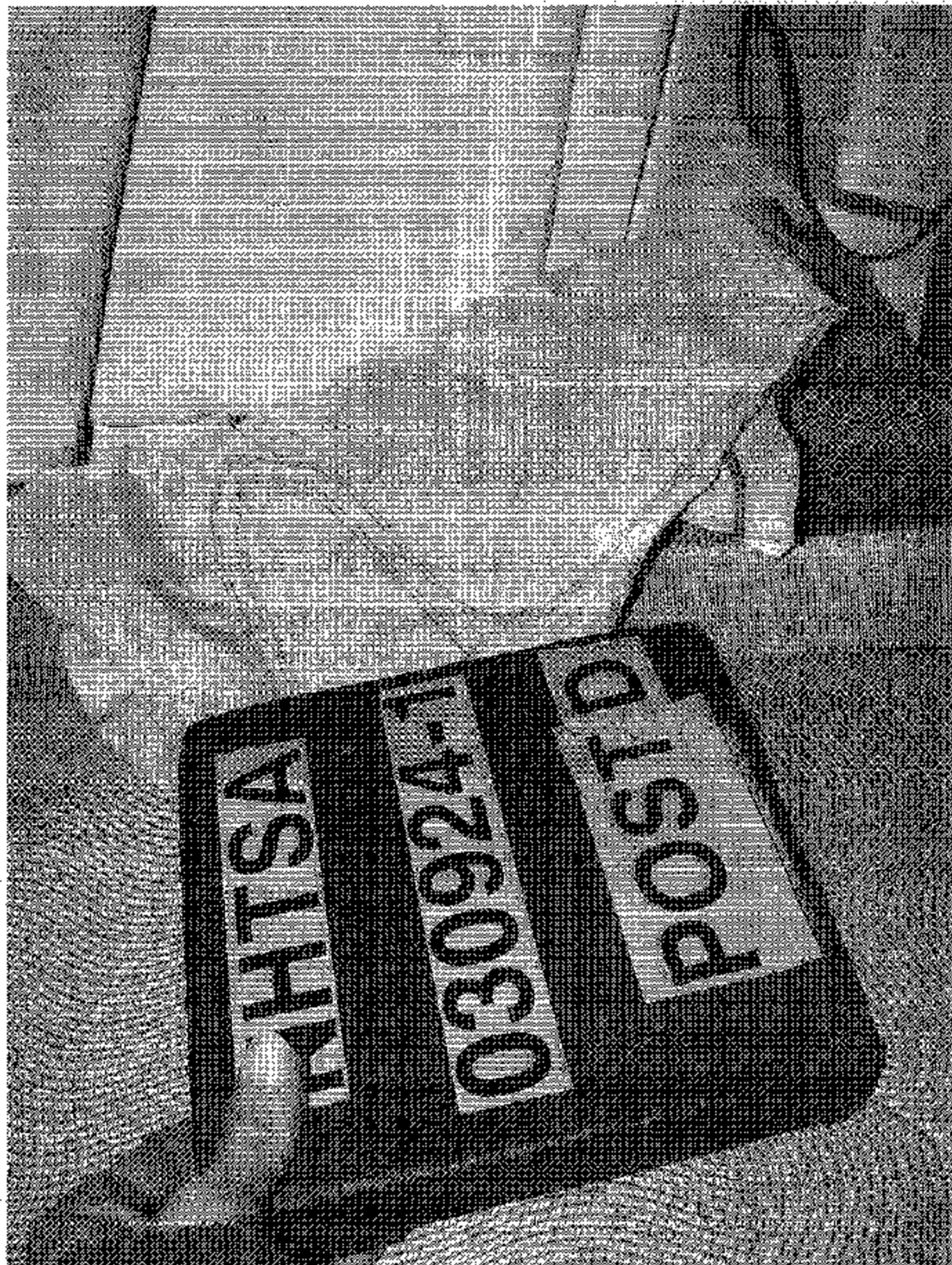


Figure A-38 Post-Test Front SID HIII Contact - View 2

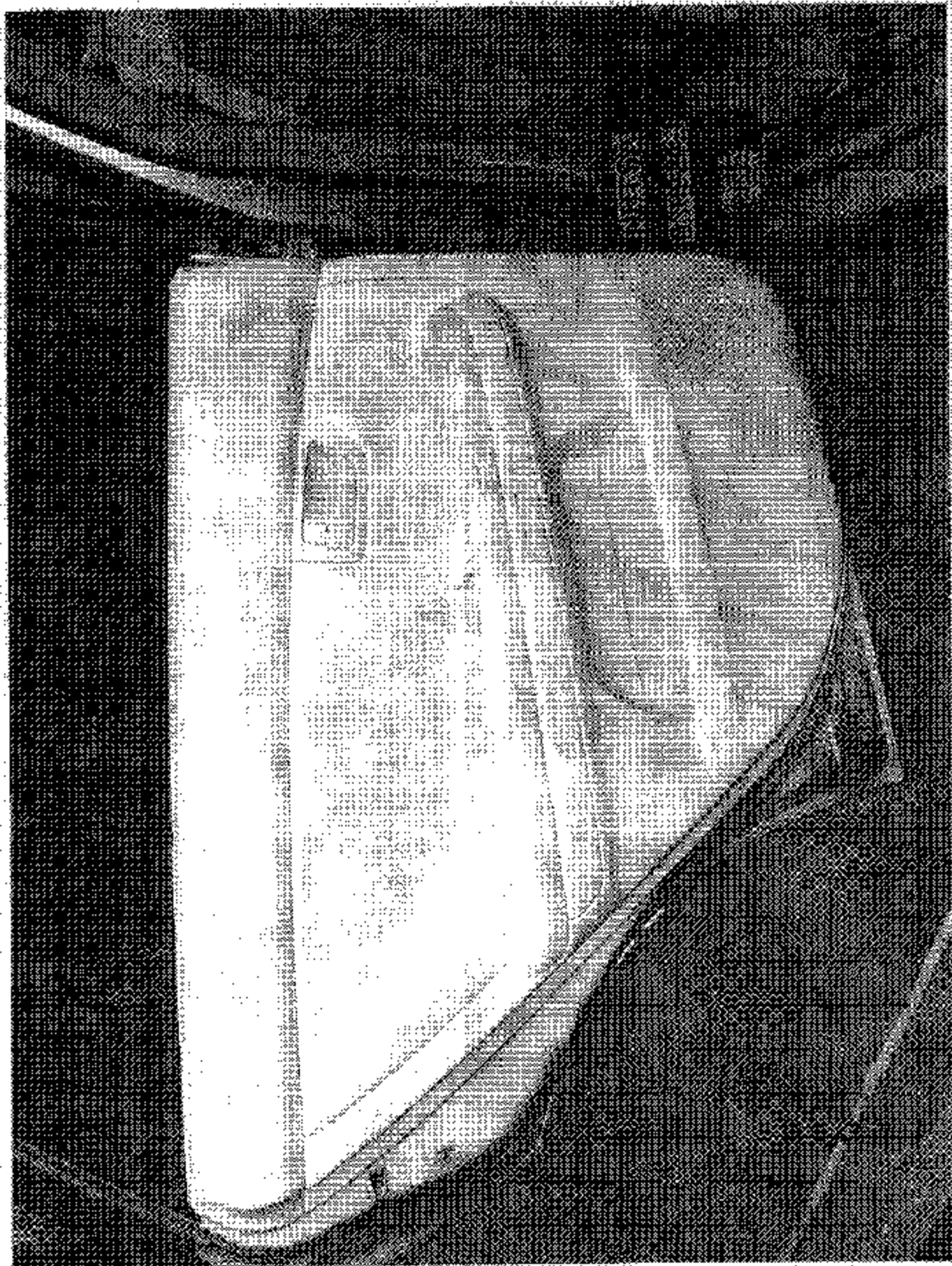


Figure A-39 Pre-Test Interior of Rear Panel

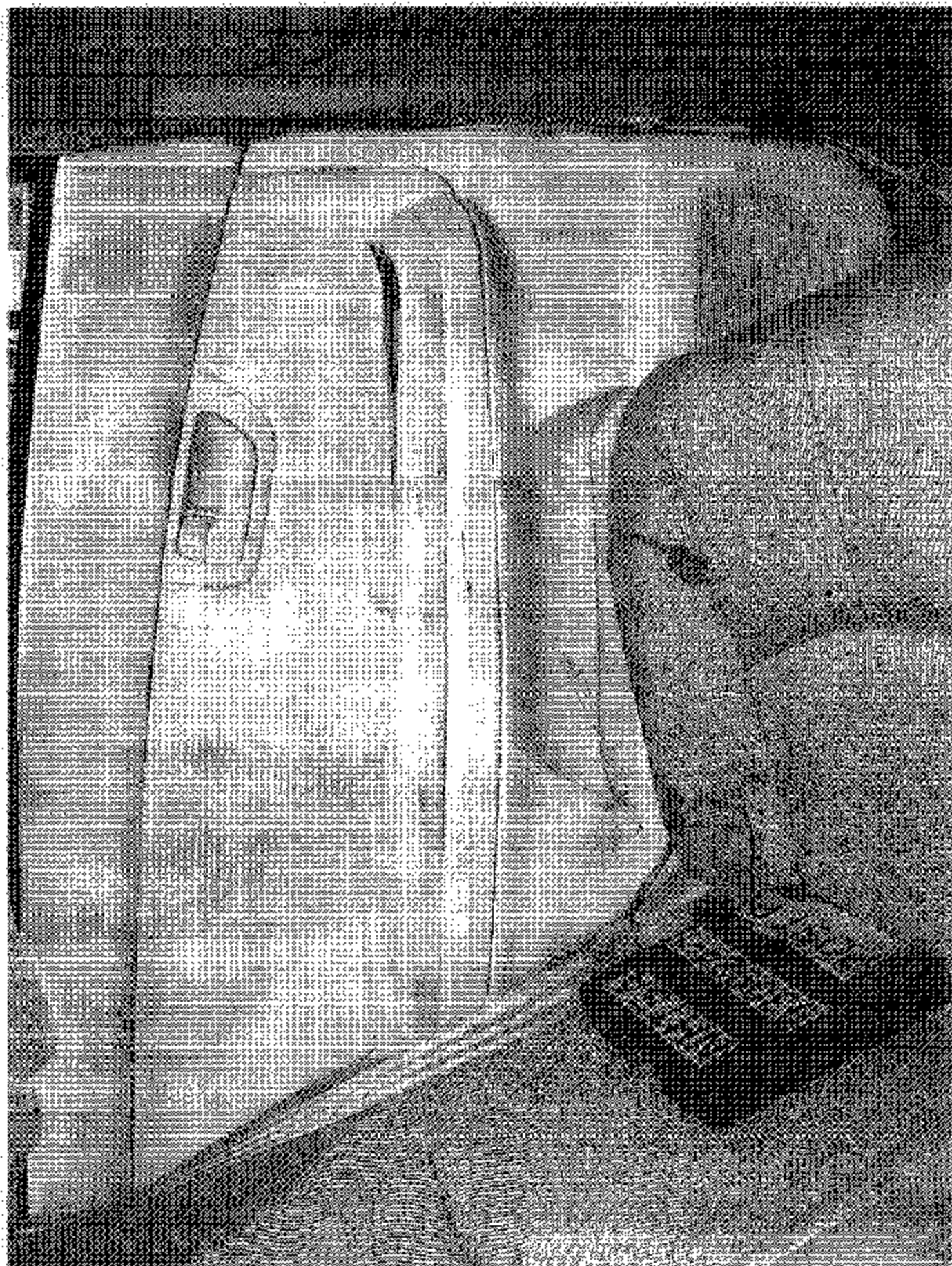


Figure A-40 Post-Test Interior of Rear Panel Showing SID HIII Impact Locations



Figure A-41 Post-Test Rear SID Hill Contact View

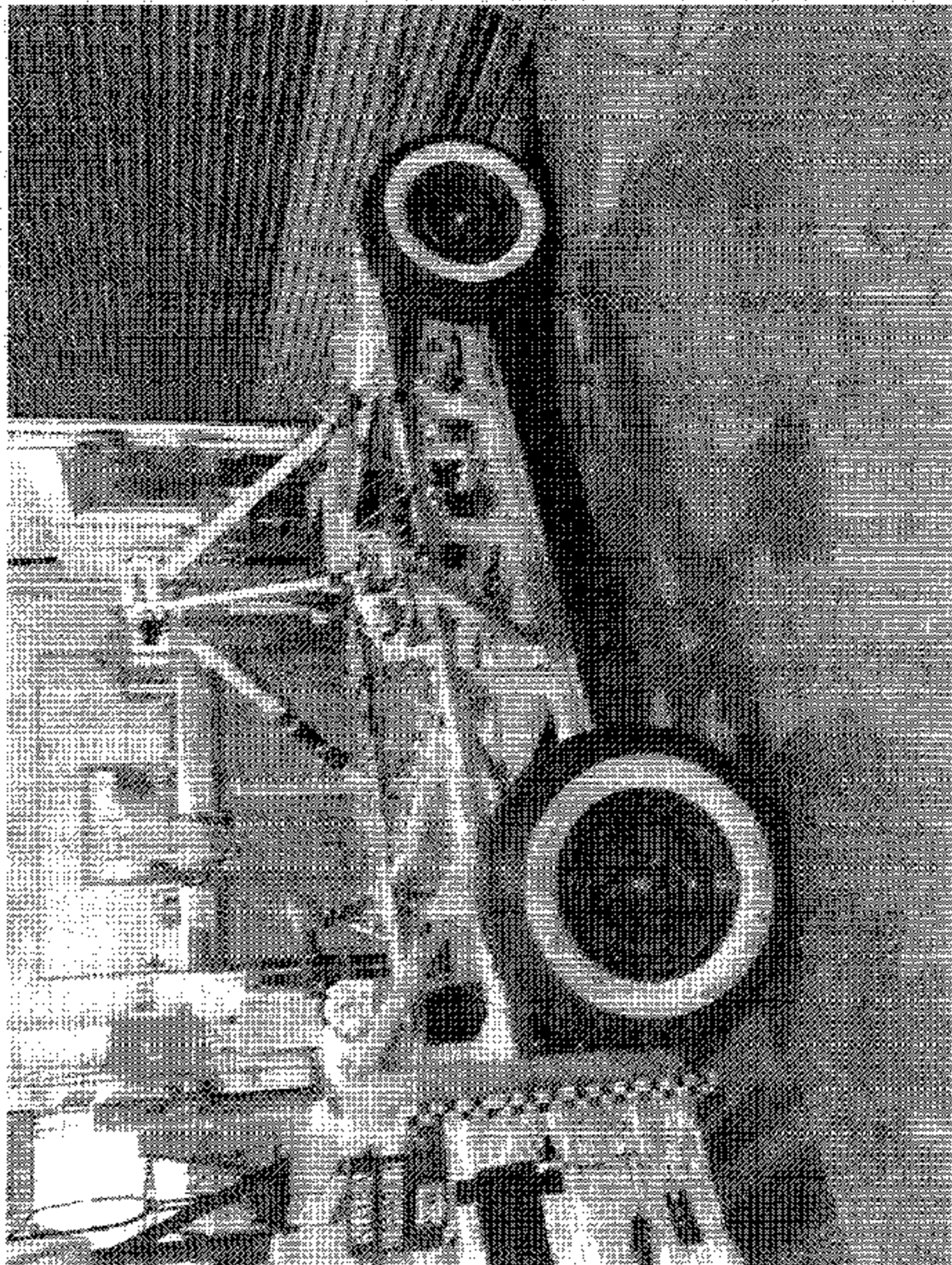


Figure A-42 Pre-Test Left Side View of MDB With Impactor Face In Position





Figure A-43 Pre-Test Primary Impact Point View



Figure A-44 Post-Test Primary Impact Point View



Figure A-45 Pre-Test Secondary Impact Point View



Figure A-46 Post-Test Secondary Impact Point View

7

GRADE

WIRE

IN

MADE BY TOYOTA MOTOR CORPORATION

TYPE 2000 12865101

GAIR FRI 1300KG 12865101

17X6 1/2J RIMS AT 25X58R17 TIRE

17X6 1/2J RIMS AT 25X58R17 TIRE

RR. 1300KG 12865101 WITH 25X58R17 TIRE

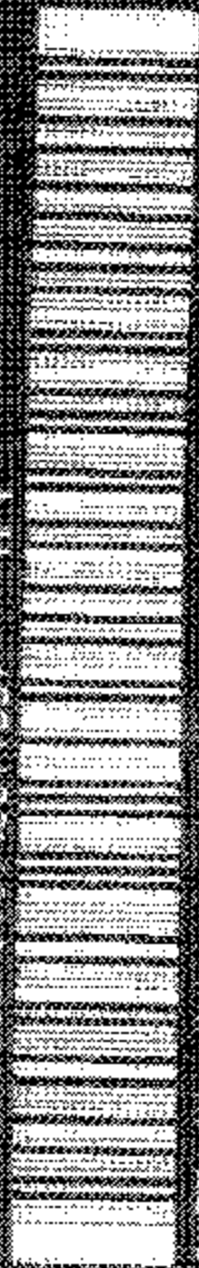
17X6 1/2J RIMS AT 25X58R17 TIRE

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR

VEHICLE SAFETY AND HET PREVENTION STANDARDS IN EFFECT ON

THE DATE OF MANUFACTURE SHOWN ABOVE.

3UGAST024001658 MPV



C/IR 8R6/FAD0

A/TM DIA/0151E

MC1331-AWACMA

MADE IN JAPAN

825

Figure A-47 Vehicle Certification Label View

# TIRE-LOADING INFORMATION

CHARGE MAXIMALE DU VEHICULE 420kg (925 LBS)  
 PERSONNES AVANT 2 ARRIERE 3 TOTAL 5  
 DIMENSION DES PNEUS 225/65R17 101S P235/55R18 99V  
 PRESSION DE PNEUS (kPa (LB/PO2))  
 AU POIDS MAXIMAL DU VEHICULE CHARGE  
 AVANT 210(30) ARRIERE 210(30)  
 POUR DE PLUS AMPLES DETAILS  
 VOIR LE MANUEL DU PROPRIETAIRE

VEHICLE CAPACITY WEIGHT 420kg (925 lbs)  
 OCCUPANTS FRT.2 RR.3 TOTAL 5  
 TIRE SIZE 225/65R17 101S P235/55R18 99V  
 COLD TIRE PRESSURE (kPa (psi))  
 UP TO VEHICLE CAPACITY WEIGHT  
 FRT.210(30) RR.210(30)  
 SEE OWNER'S MANUAL FOR  
 ADDITIONAL INFORMATION

48110

2 Q

Figure A-48 Vehicle Recommended Tire Pressure Label View

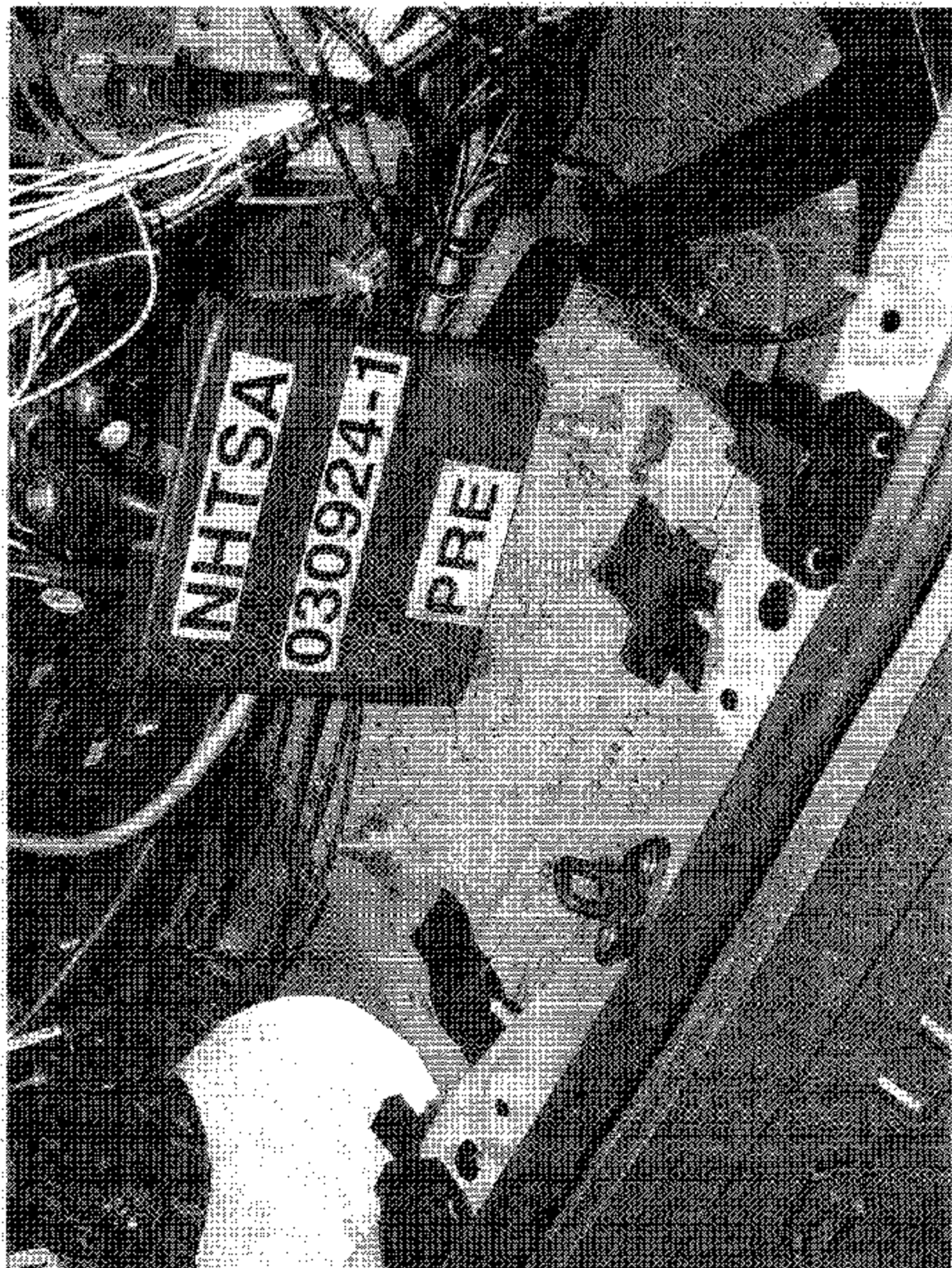


Figure A-49 Pre-Test Vehicle Ballast View

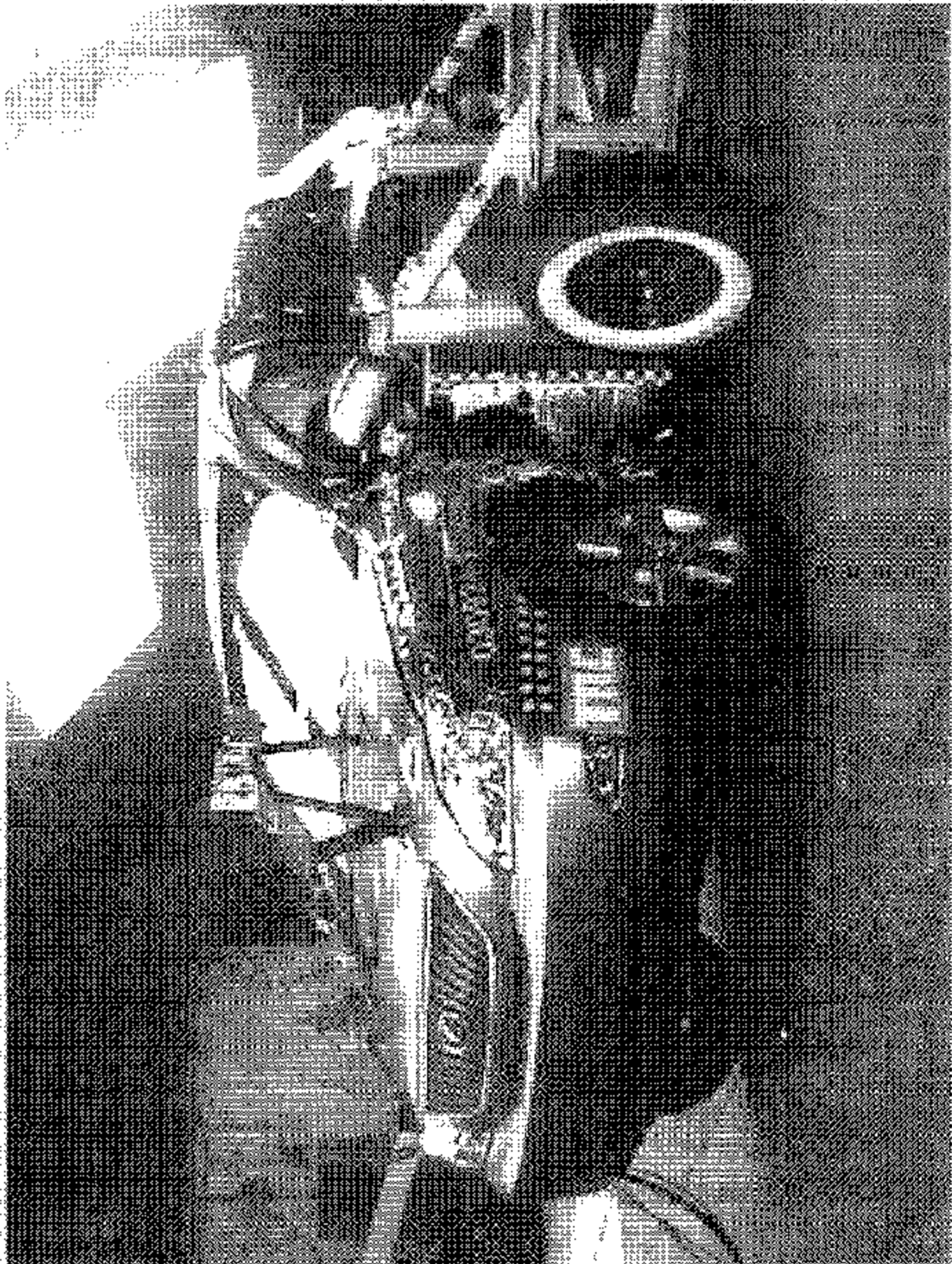


Figure A-50 Impact Event





Figure A-51 Pre-Test Fuel Cap



Figure A-52 Post-Test Fuel Cap

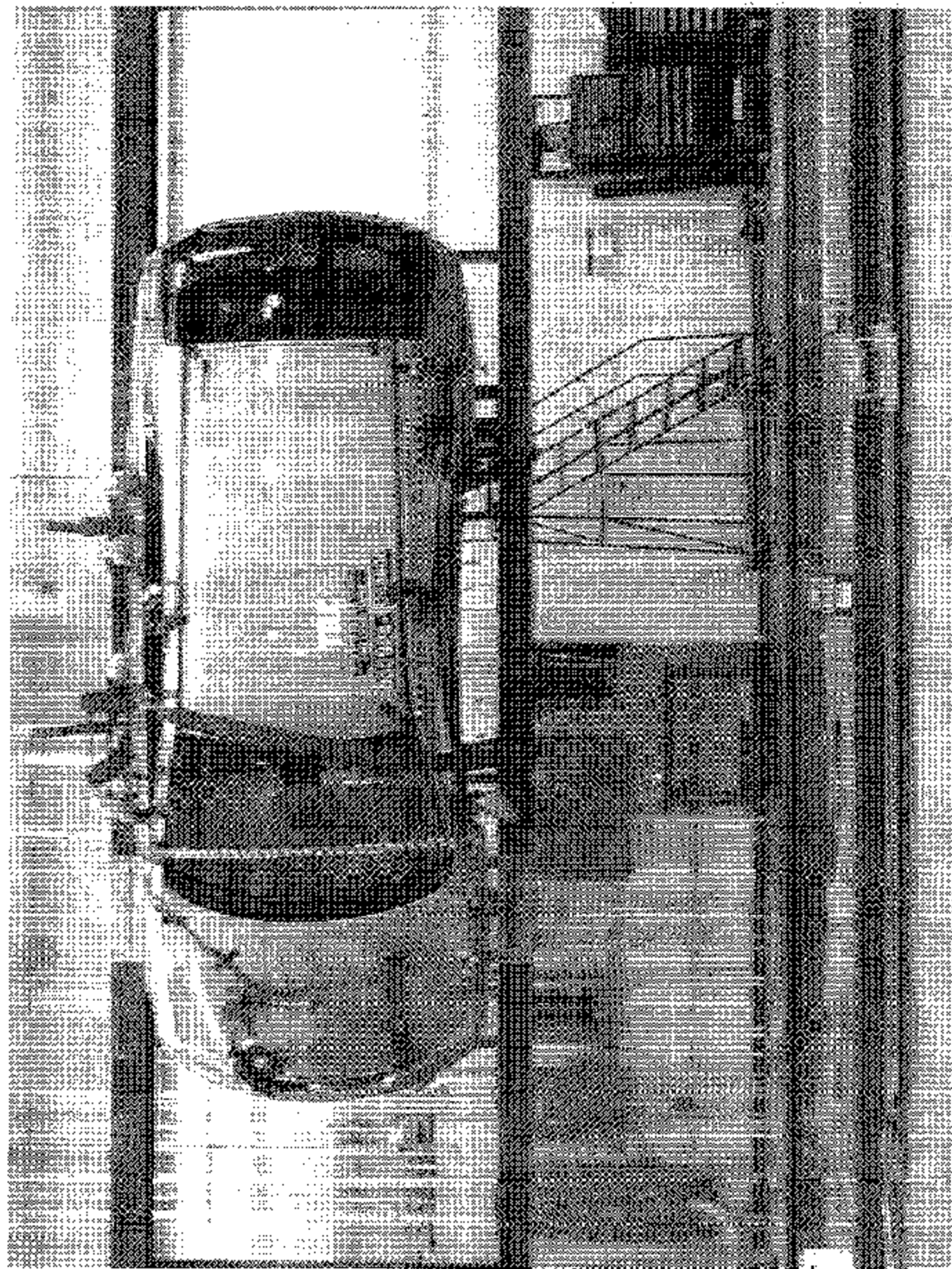


Figure A-53 FMVSS 301 Rollover View at 90°

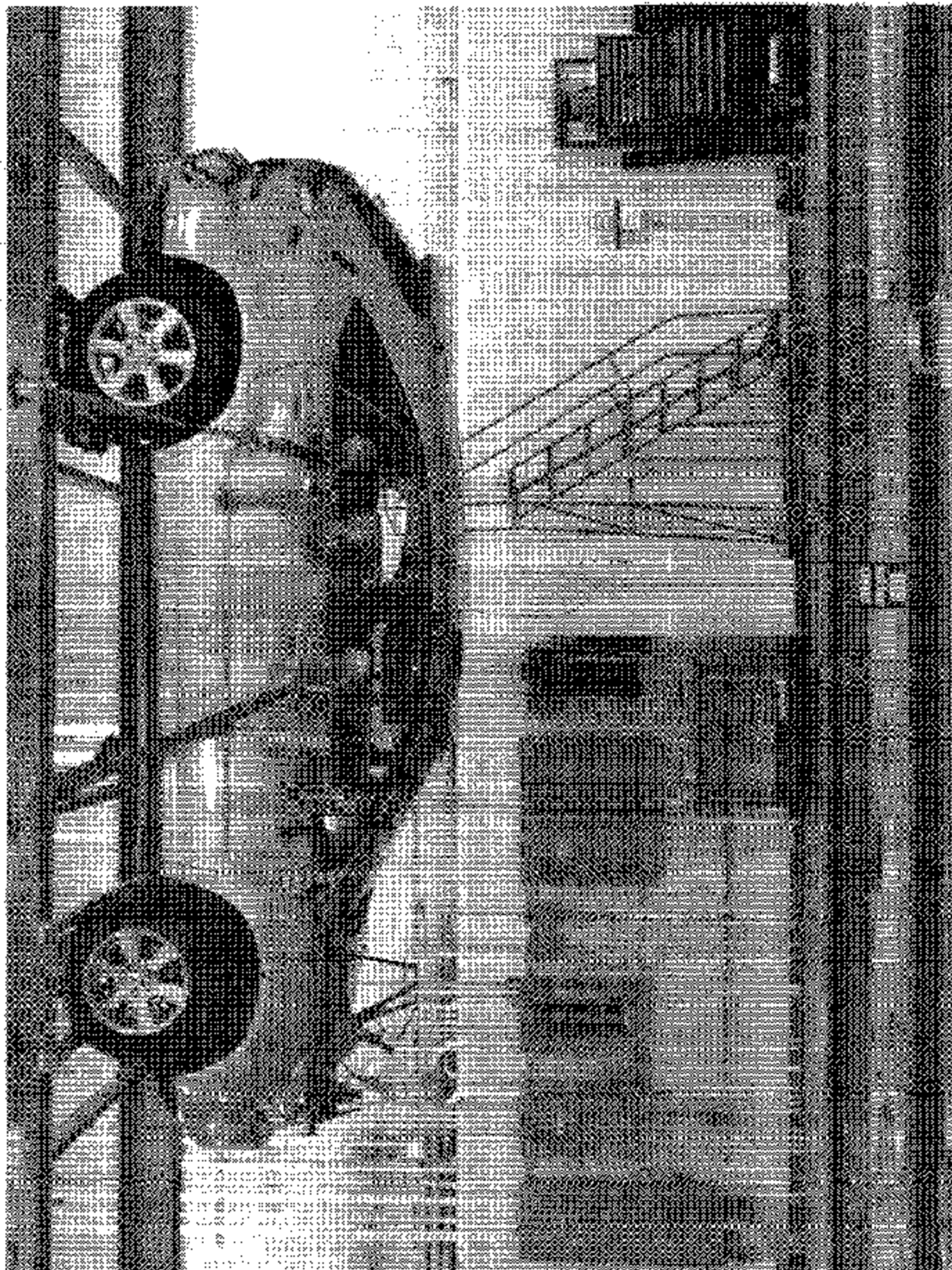


Figure A-54 FMVSS 301 Rollover View at 180°

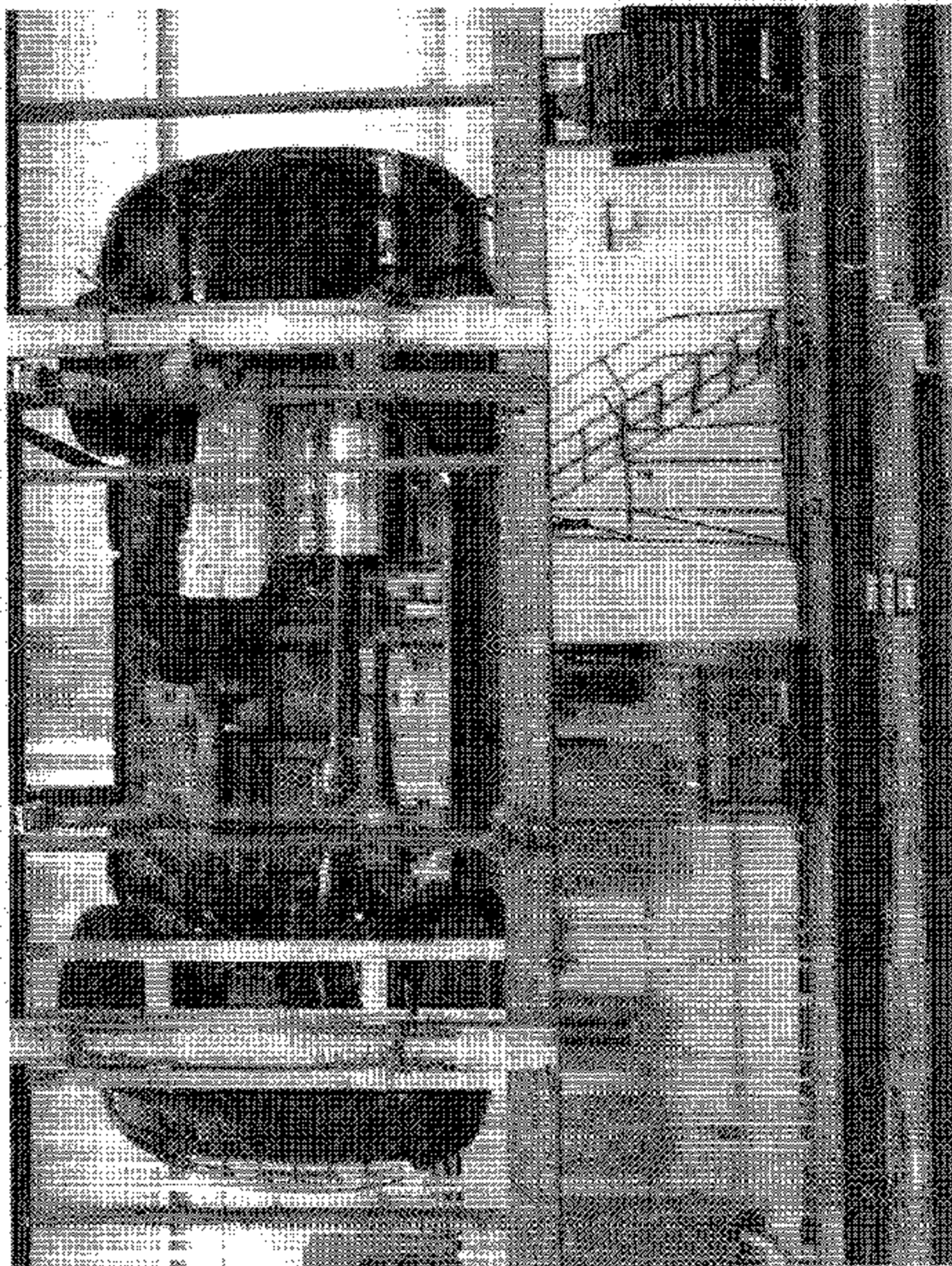


Figure A-55 FMVSS 301 Rollover View at 270°

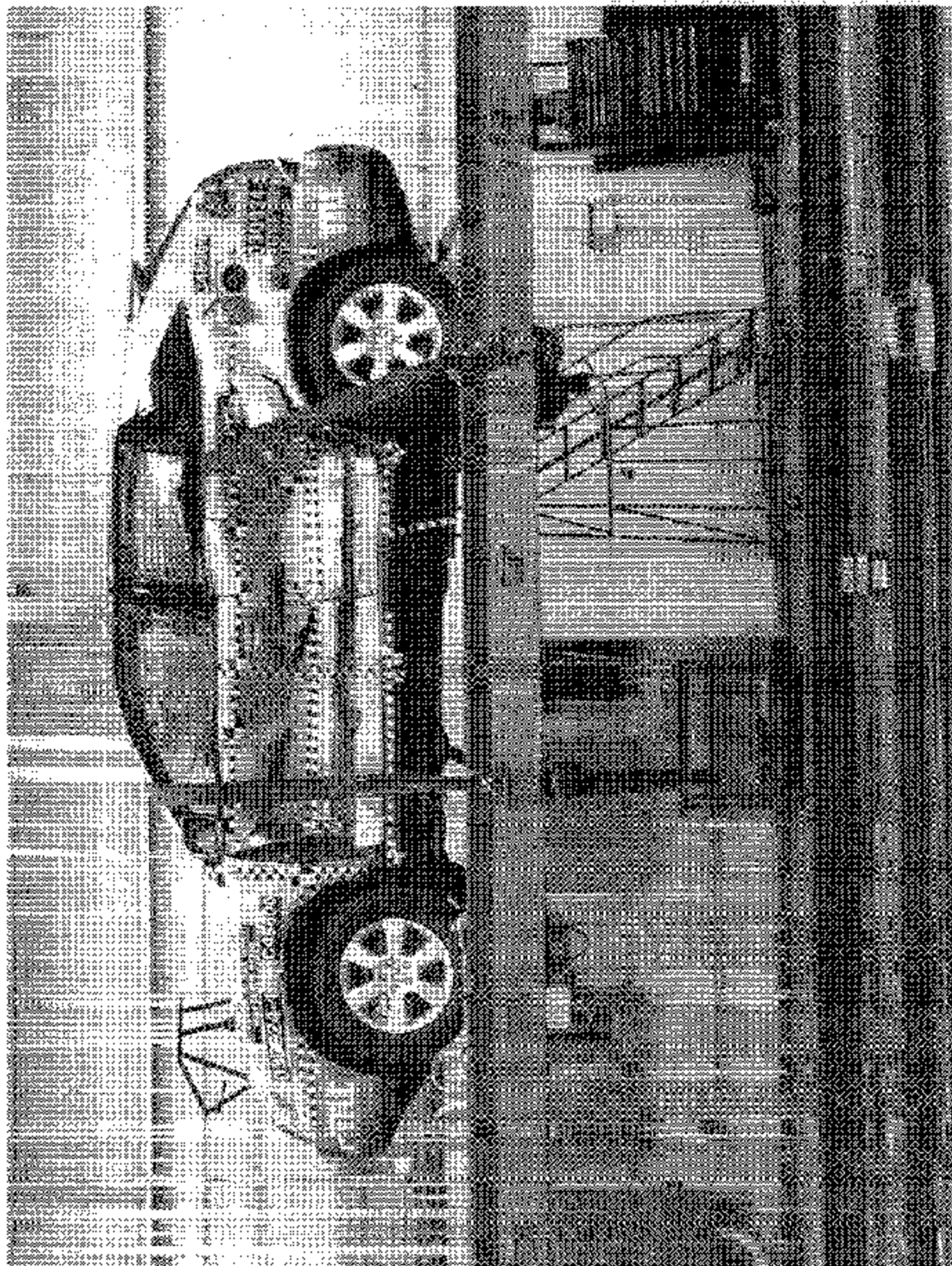


Figure A-56 FMVSS 301 Rollover View at 360°

## Appendix B

### Data Plots

Table of Data Plots

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000

Integration Data - Filter Class 180

Force Data - Filter Class 1000

Moment Data - Filter Class 600

Contact Data - Filter Class 1000

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
1	Driver Head X-Axis Acceleration	B-10
2	Driver Head X-Axis Velocity	B-11
3	Driver Head Y-Axis Acceleration	B-12
4	Driver Head Y-Axis Velocity	B-13
5	Driver Head Z-Axis Acceleration	B-14
6	Driver Head Z-Axis Velocity	B-15
7	Driver Head Resultant Acceleration	B-16
8	Driver Head Resultant Redundant Acceleration	B-17
9	Driver Neck X-Axis Shear Force	B-18
10	Driver Neck Y-Axis Shear Force	B-19
11	Driver Neck Z-Axis Axial Force	B-20
12	Driver Neck Moment about X Axis	B-21
13	Driver Neck Moment about Y Axis	B-22
14	Driver Neck Moment about Z Axis	B-23
15	Driver Neck Occipital Condyle Moment about X Axis	B-24
16	Driver Upper Rib Y-Axis Acceleration	B-25
17	Driver Upper Rib Y-Axis Velocity	B-26
18	Driver Lower Rib Y-Axis Acceleration	B-27
19	Driver Lower Rib Y-Axis Velocity	B-28
20	Driver Lower Spine Y-Axis Acceleration	B-29
21	Driver Lower Spine Y-Axis Velocity	B-30
22	Driver Pelvis Y-Axis Acceleration	B-31
23	Driver Pelvis Y-Axis Velocity	B-32
24	Left Rear Passenger Head X-Axis Acceleration	B-33



Table of Data Plots (Continued)

Driver and Passenger Dummy Instrumentation Plots (Continued)

Acceleration Data - Filter Class 1000

Integration Data - Filter Class 180

Force Data - Filter Class 1000

Moment Data - Filter Class 600

Contact Data - Filter Class 1000

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
25	Left Rear Passenger Head X-Axis Velocity	B-34
26	Left Rear Passenger Head Y-Axis Acceleration	B-35
27	Left Rear Passenger Head Y-Axis Velocity	B-36
28	Left Rear Passenger Head Z-Axis Acceleration	B-37
29	Left Rear Passenger Head Z-Axis Velocity	B-38
30	Left Rear Passenger Head Resultant Acceleration	B-39
31	Left Rear Passenger Head Resultant Redundant Acceleration	B-40
32	Left Rear Passenger Neck X-Axis Shear Force	B-41
33	Left Rear Passenger Neck Y-Axis Shear Force	B-42
34	Left Rear Passenger Neck Z-Axis Axial Force	B-43
35	Left Rear Passenger Neck Moment about X Axis	B-44
36	Left Rear Passenger Neck Moment about Y Axis	B-45
37	Left Rear Passenger Neck Moment about Z Axis	B-46
38	Left Rear Passenger Neck Occipital Condyle Moment about X Axis	B-47
39	Left Rear Passenger Upper Rib Y-Axis Acceleration	B-48
40	Left Rear Passenger Upper Rib Y-Axis Velocity	B-49
41	Left Rear Passenger Lower Rib Y-Axis Acceleration	B-50
42	Left Rear Passenger Lower Rib Y-Axis Velocity	B-51
43	Left Rear Passenger Lower Spine Y-Axis Acceleration	B-52
44	Left Rear Passenger Lower Spine Y-Axis Velocity	B-53
45	Left Rear Passenger Pelvis Y-Axis Acceleration	B-54
46	Left Rear Passenger Pelvis Y-Axis Velocity	B-55

Table of Data Plots (Continued)

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000 - Redundant

Integration Data - Filter Class 180 - Redundant

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
47	Driver Head X-Axis Redundant Acceleration	B-57
48	Driver Head X-Axis Redundant Velocity	B-58
49	Driver Head Y-Axis Redundant Acceleration	B-59
50	Driver Head Y-Axis Redundant Velocity	B-60
51	Driver Head Z-Axis Redundant Acceleration	B-61
52	Driver Head Z-Axis Redundant Velocity	B-62
53	Driver Upper Rib Y-Axis Redundant Acceleration	B-63
54	Driver Upper Rib Y-Axis Redundant Velocity	B-64
55	Driver Lower Rib Y-Axis Redundant Acceleration	B-65
56	Driver Lower Rib Y-Axis Redundant Velocity	B-66
57	Driver Lower Spine Y-Axis Redundant Acceleration	B-67
58	Driver Lower Spine Y-Axis Redundant Velocity	B-68
59	Driver Pelvis Y-Axis Redundant Acceleration	B-69
60	Driver Pelvis Y-Axis Redundant Velocity	B-70
61	Driver Shoulder Contact Switch	B-71
62	Driver Pelvis Contact Switch	B-72
63	Left Rear Passenger Head X-Axis Redundant Acceleration	B-73
64	Left Rear Passenger Head X-Axis Redundant Velocity	B-74
65	Left Rear Passenger Head Y-Axis Redundant Acceleration	B-75
66	Left Rear Passenger Head Y-Axis Redundant Velocity	B-76
67	Left Rear Passenger Head Z-Axis Redundant Acceleration	B-77
68	Left Rear Passenger Head Z-Axis Redundant Velocity	B-78
69	Left Rear Passenger Upper Rib Y-Axis Redundant Acceleration	B-79
70	Left Rear Passenger Upper Rib Y-Axis Redundant Velocity	B-80
71	Left Rear Passenger Lower Rib Y-Axis Redundant Acceleration	B-81
72	Left Rear Passenger Lower Rib Y-Axis Redundant Velocity	B-82
73	Left Rear Passenger Lower Spine Y-Axis Redundant Acceleration	B-83
74	Left Rear Passenger Lower Spine Y-Axis Redundant Velocity	B-84
75	Left Rear Passenger Pelvis Y-Axis Redundant Acceleration	B-85
76	Left Rear Passenger Pelvis Y-Axis Redundant Velocity	B-86
77	Left Rear Passenger Shoulder Contact Switch	B-87
78	Left Rear Passenger Pelvis Contact Switch	B-88

Table of Data Plots (Continued)  
Test Vehicle Instrumentation Plots  
Acceleration Data - Filter Class 60  
Integration Data - Filter Class 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
79	Right Side Sill at Front Seat X-Axis Acceleration	B-90
80	Right Side Sill at Front Seat X-Axis Velocity	B-91
81	Right Side Sill at Front Seat Y-Axis Acceleration	B-92
82	Right Side Sill at Front Seat Y-Axis Velocity	B-93
83	Right Side Sill at Front Seat Z-Axis Acceleration	B-94
84	Right Side Sill at Front Seat Z-Axis Velocity	B-95
85	Right Side Sill at Front Seat Resultant Acceleration	B-96
86	Right Side Sill at Rear Seat X-Axis Acceleration	B-97
87	Right Side Sill at Rear Seat X-Axis Velocity	B-98
88	Right Side Sill at Rear Seat Y-Axis Acceleration	B-99
89	Right Side Sill at Rear Seat Y-Axis Velocity	B-100
90	Right Side Sill at Rear Seat Z-Axis Acceleration	B-101
91	Right Side Sill at Rear Seat Z-Axis Velocity	B-102
92	Right Side Sill at Rear Seat Resultant Acceleration	B-103
93	Rear Floorpan Above Axle X-Axis Acceleration	B-104
94	Rear Floorpan Above Axle X-Axis Velocity	B-105
95	Rear Floorpan Above Axle Y-Axis Acceleration	B-106
96	Rear Floorpan Above Axle Y-Axis Velocity	B-107
97	Rear Floorpan Above Axle Z-Axis Acceleration	B-108
98	Rear Floorpan Above Axle Z-Axis Velocity	B-109
99	Rear Floorpan Above Axle Resultant Acceleration	B-110
100	Left Side Sill at Front Seat Y-Axis Acceleration	B-111
101	Left Side Sill at Front Seat Y-Axis Velocity	B-112
102	Left Side Sill at Front Seat Y-Axis Displacement	B-113

Table of Data Plots (Continued)  
 Test Vehicle Instrumentation Plots (Continued)  
 Acceleration Data - Filter Class 60  
 Integration Data - Filter Class 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
103	Left Side Sill at Rear Seat Y-Axis Acceleration	B-114
104	Left Side Sill at Rear Seat Y-Axis Velocity	B-115
105	Left Side Sill at Rear Seat Y-Axis Displacement	B-116
106	Right Rear Occupant Compartment Y-Axis Acceleration	B-117
107	Right Rear Occupant Compartment Y-Axis Velocity	B-118
108	Right Rear Occupant Compartment Y-Axis Displacement	B-119
109	Left Lower A-Post Y-Axis Acceleration	B-120
110	Left Lower A-Post Y-Axis Velocity	B-121
111	Left Middle A-Post Y-Axis Acceleration	B-122
112	Left Middle A-Post Y-Axis Velocity	B-123
113	Left Lower B-Post Y-Axis Acceleration	B-124
114	Left Lower B-Post Y-Axis Velocity	B-125
115	Left Middle B-Post Y-Axis Acceleration	B-126
116	Left Middle B-Post Y-Axis Velocity	B-127
117	Left Front Seat Track Y-Axis Acceleration	B-128
118	Left Front Seat Track Y-Axis Velocity	B-129
119	Left Rear Seat Track Y-Axis Acceleration	B-130
120	Left Rear Seat Track Y-Axis Velocity	B-131
121	Vehicle Center of Gravity X-Axis Acceleration	B-132
122	Vehicle Center of Gravity X-Axis Velocity	B-133
123	Vehicle Center of Gravity Y-Axis Acceleration	B-134
124	Vehicle Center of Gravity Y-Axis Velocity	B-135
125	Vehicle Center of Gravity Z-Axis Acceleration	B-136
126	Vehicle Center of Gravity Z-Axis Velocity	B-137
127	Vehicle Center of Gravity Resultant Acceleration	B-138

Table of Data Plots (Continued)

MDB Instrumentation Plots

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
128	MDB Center of Gravity X-Axis Acceleration	B-140
129	MDB Center of Gravity X-Axis Velocity	B-141
130	MDB Center of Gravity Y-Axis Acceleration	B-142
131	MDB Center of Gravity Y-Axis Velocity	B-143
132	MDB Center of Gravity Z-Axis Acceleration	B-144
133	MDB Center of Gravity Z-Axis Velocity	B-145
134	MDB Center of Gravity Resultant Acceleration	B-146
135	MDB Left Rear X-Axis Acceleration	B-147
136	MDB Left Rear X-Axis Velocity	B-148
137	MDB Left Rear Y-Axis Acceleration	B-149
138	MDB Left Rear Y-Axis Velocity	B-150
139	MDB Right Side Contact Switch	B-151
140	MDB Left Side Contact Switch	B-152

Table of Data Plots (Continued)  
Driver and Passenger Dummy Instrumentation Plots  
Acceleration Data - FIR Filtered

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
141	Driver Upper Rib Y-Axis Acceleration	B-154
142	Driver Lower Rib Y-Axis Acceleration	B-155
143	Driver Lower Spine Y-Axis Acceleration	B-156
144	Driver Pelvis Y-Axis Acceleration	B-157
145	Left Rear Passenger Upper Rib Y-Axis Acceleration	B-158
146	Left Rear Passenger Lower Rib Y-Axis Acceleration	B-159
147	Left Rear Passenger Lower Spine Y-Axis Acceleration	B-160
148	Left Rear Passenger Pelvis Y-Axis Acceleration	B-161
149	Driver Upper Rib Y-Axis Redundant Acceleration	B-162
150	Driver Lower Rib Y-Axis Redundant Acceleration	B-163
151	Driver Lower Spine Y-Axis Redundant Acceleration	B-164
152	Driver Pelvis Y-Axis Redundant Acceleration	B-165
153	Left Rear Passenger Upper Rib Y-Axis Redundant Acceleration	B-166
154	Left Rear Passenger Lower Rib Y-Axis Redundant Acceleration	B-167
155	Left Rear Passenger Lower Spine Y-Axis Redundant Acceleration	B-168
156	Left Rear Passenger Pelvis Y-Axis Redundant Acceleration	B-169

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000

Integration Data - Filter Class 180

Force Data - Filter Class 1000

Moment Data - Filter Class 600

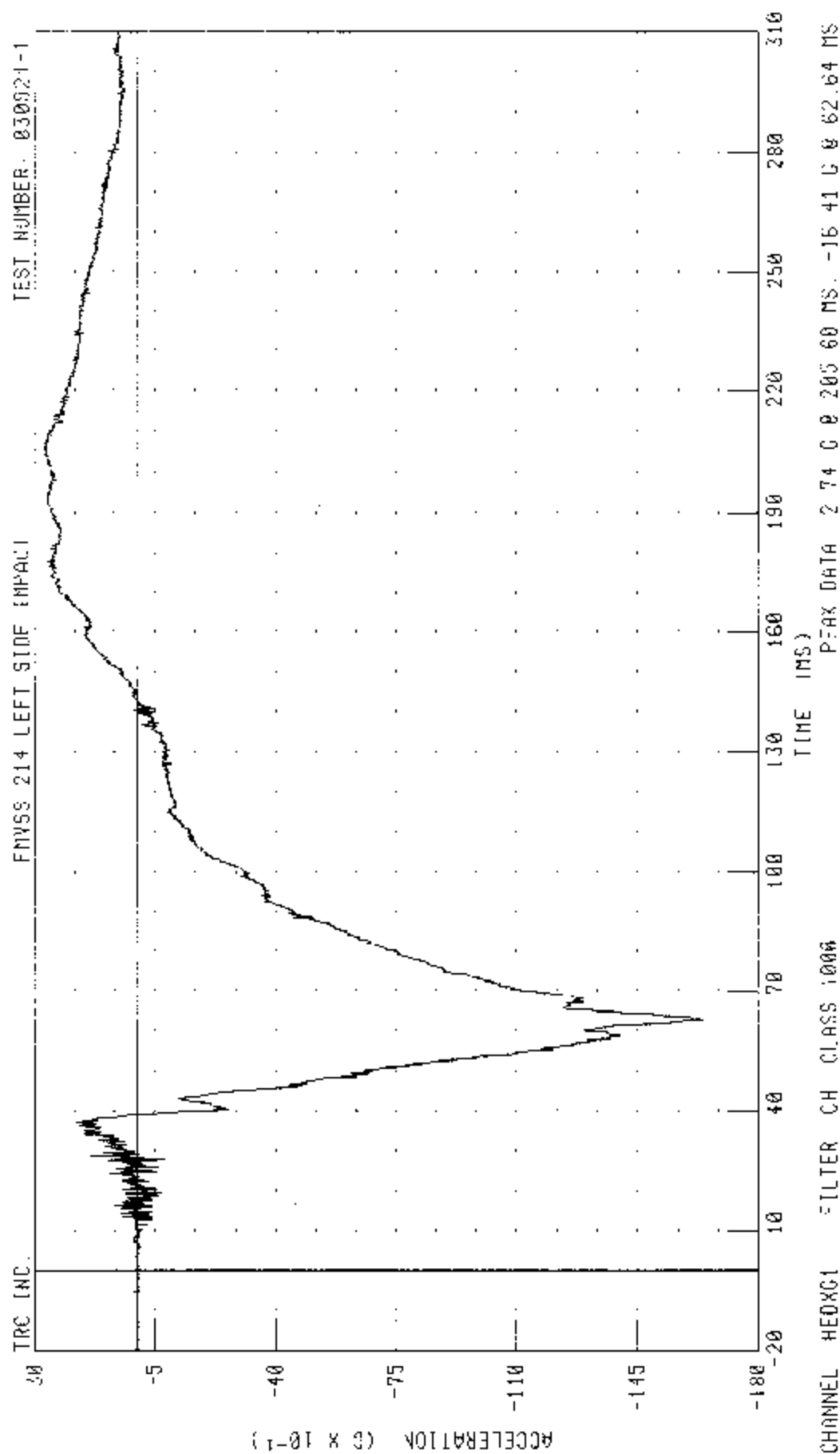
Contact Data - Filter Class 1000

55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

DRIVER HEAD X-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030924-1



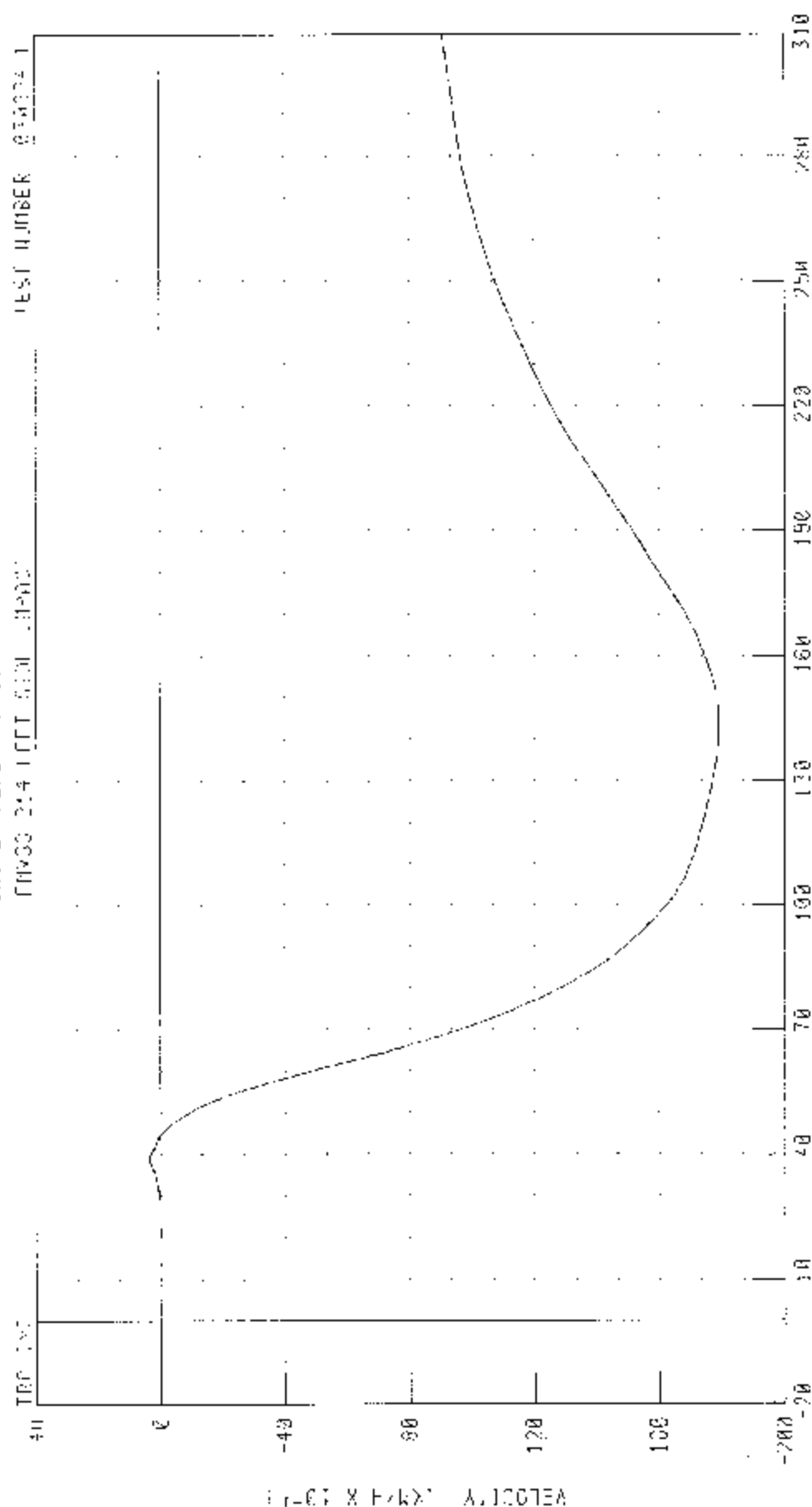


55-20 KPH 90 DEGREE SIDE IMPACT (PLAYBACK OFF) DRIVER'S SIDE OF 2004 LEXUS RX350

DRIVER SEAT X AXIS VIBROLOGY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030924-1



TIME (MS)

CHANNEL (EDXV) FILTER: CF CLOSS 160

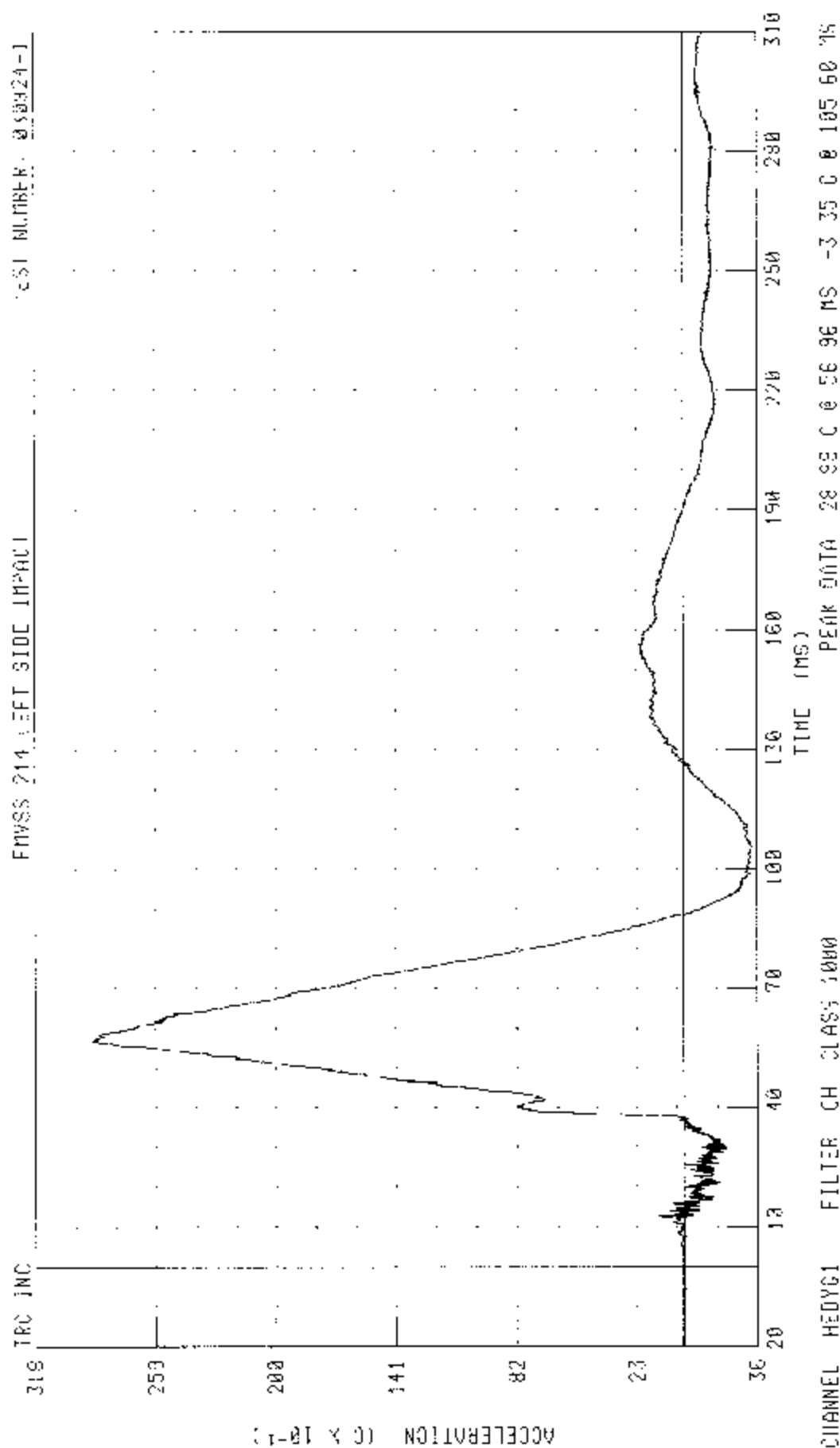
PEAK DATA: 0.36 KPH @ 79.12 MS, 17.00 KPH @ 142.43 MS

55-20 KPH ON DRIVE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 EXUS RX330

DRIVER HEAD Y AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030924-1



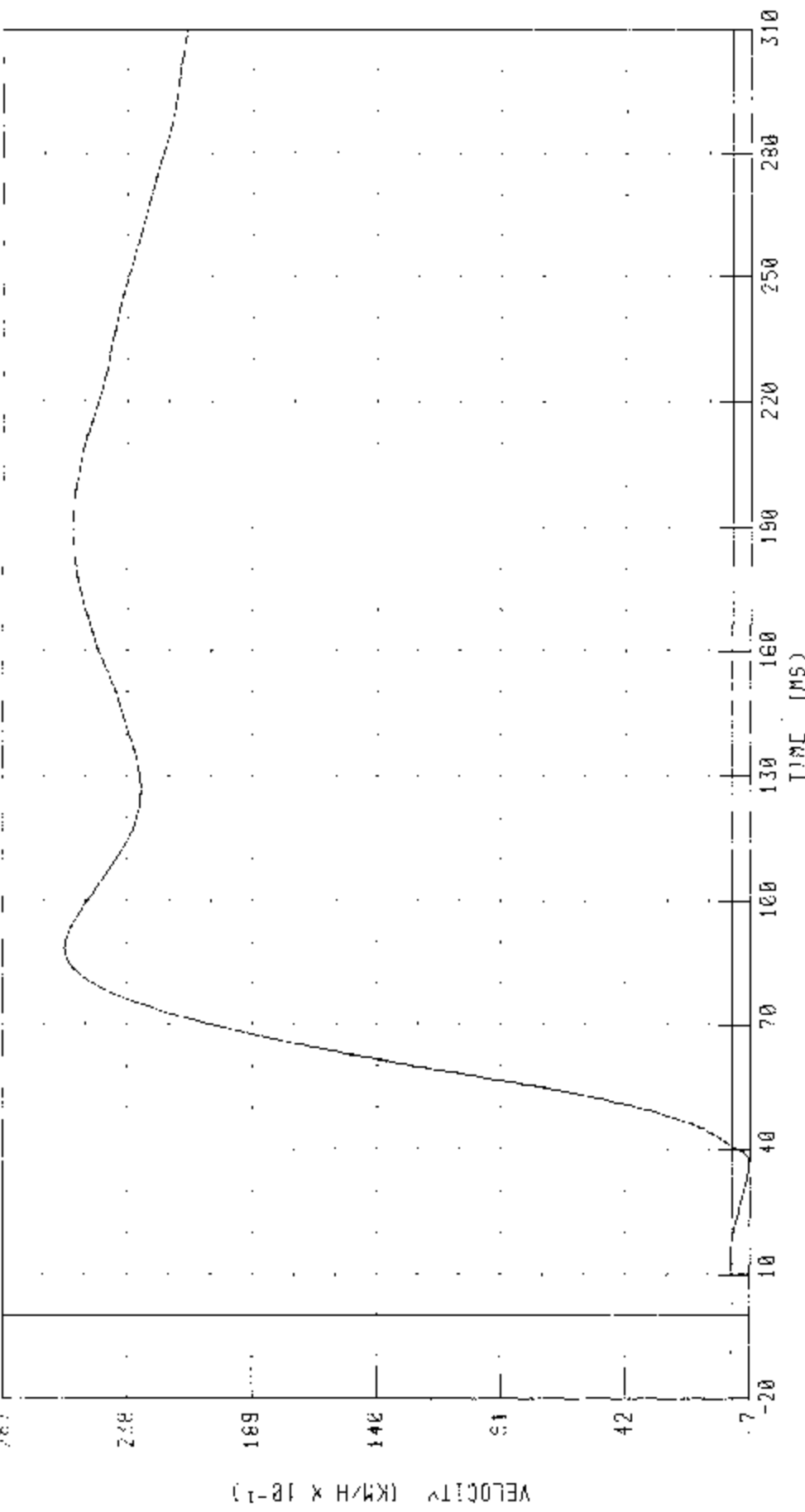
55/20 KPH 90 DEGREE STOP IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2001 LEXUS RX330

DRIVER OCCUPANT Y-AXIS VELOCITY

PHASE 214 LEFT SIDE IMPACT

TRC INC

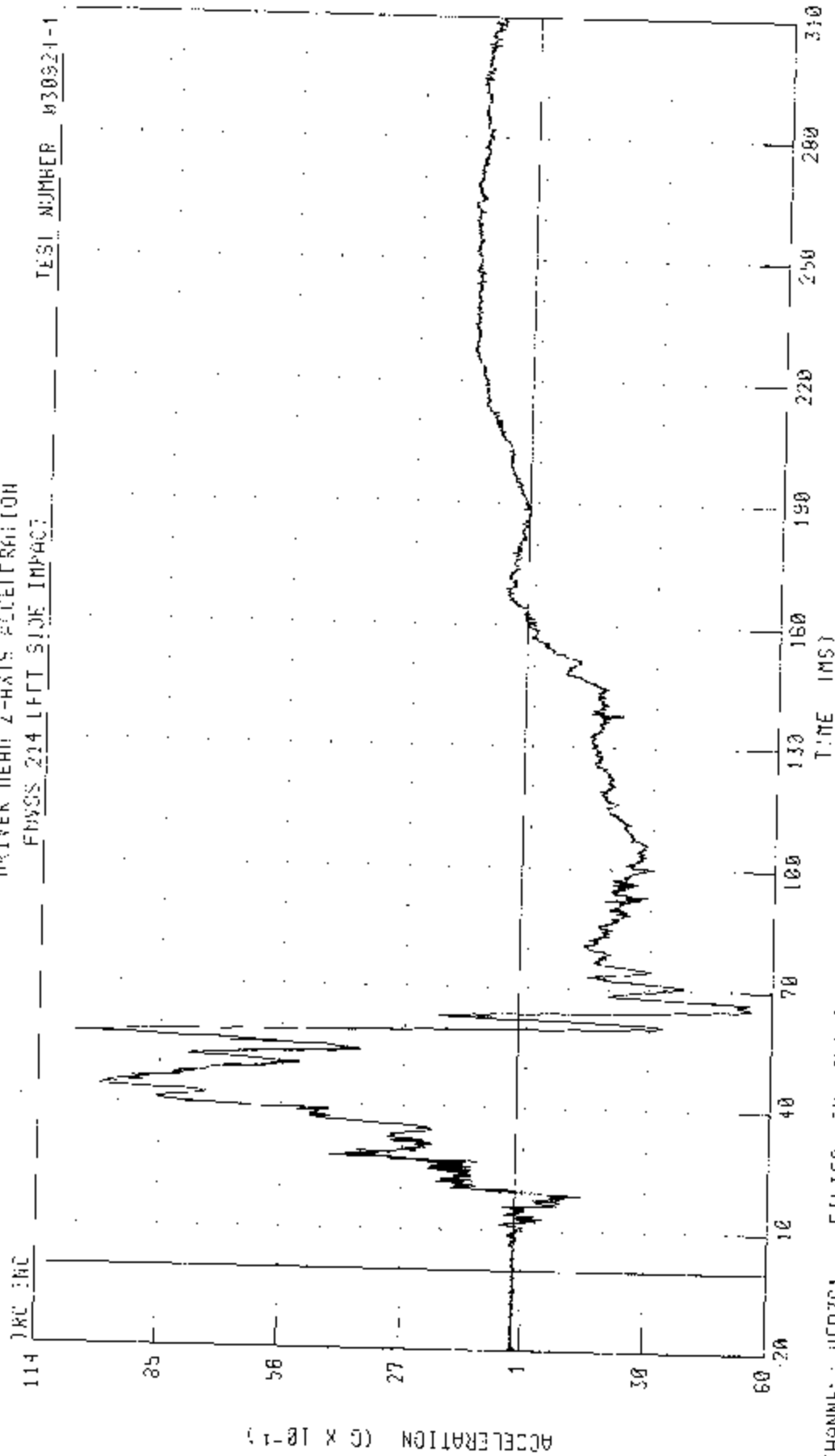
TEST NUMBER: 030924



PEAK DATA: 26.24 KM/H @ 88.72 MS, 0.67 KM/H @ 37.12 MS

CHANNEL: HELVVI FILTER: CH CLOSS 100

55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330  
 DRIVER HEAD Z-AXIS ACCELERATION



CHANNEL: HEDZ01 FILTER: CH. CLASS: 1000

PEAK DATA: 10 57 00 57 44 MS, -5 53 00 53 68 MS

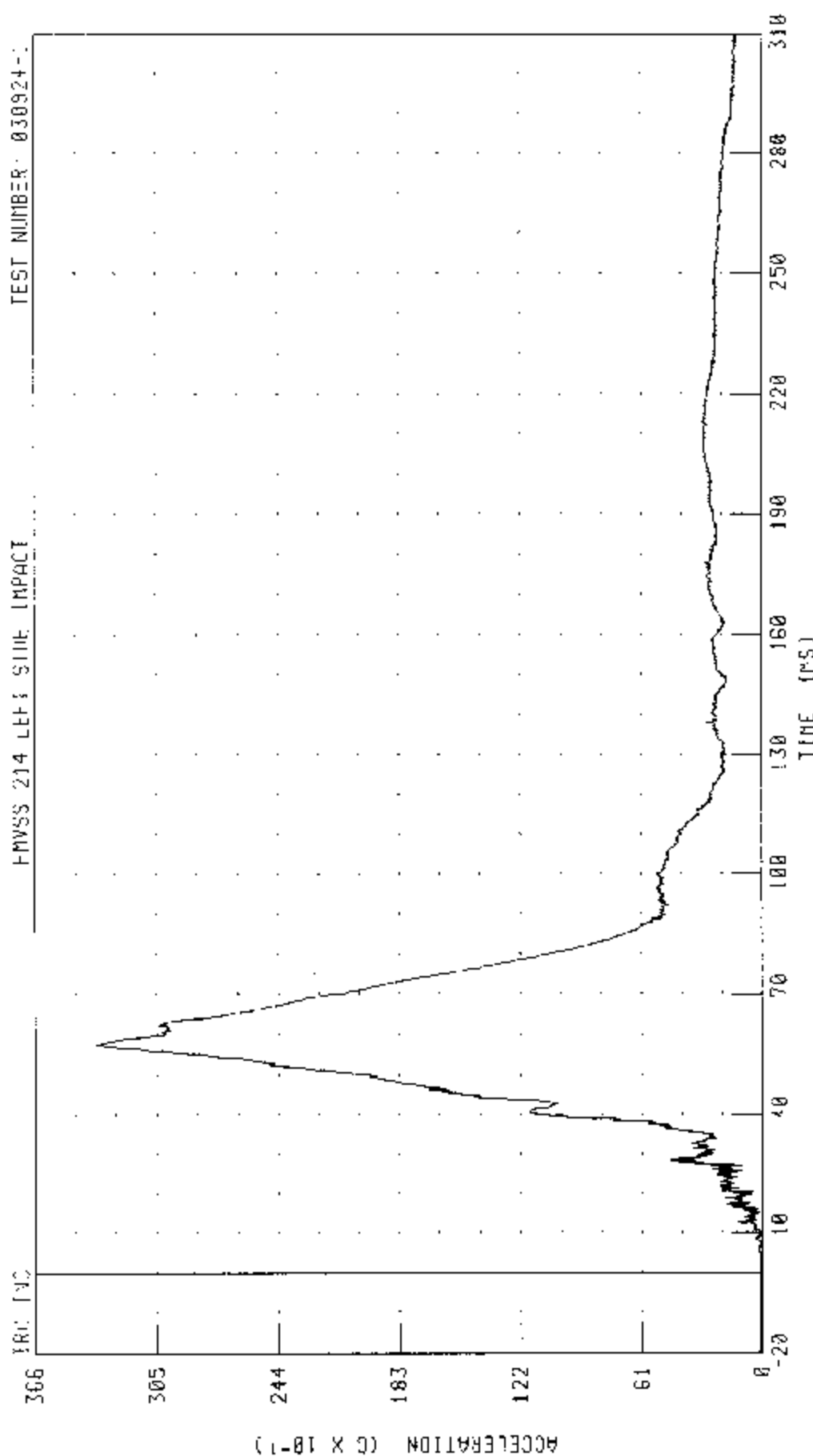


55/20 KPH 50 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

DRIVER HEAD RESULTANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030924-1

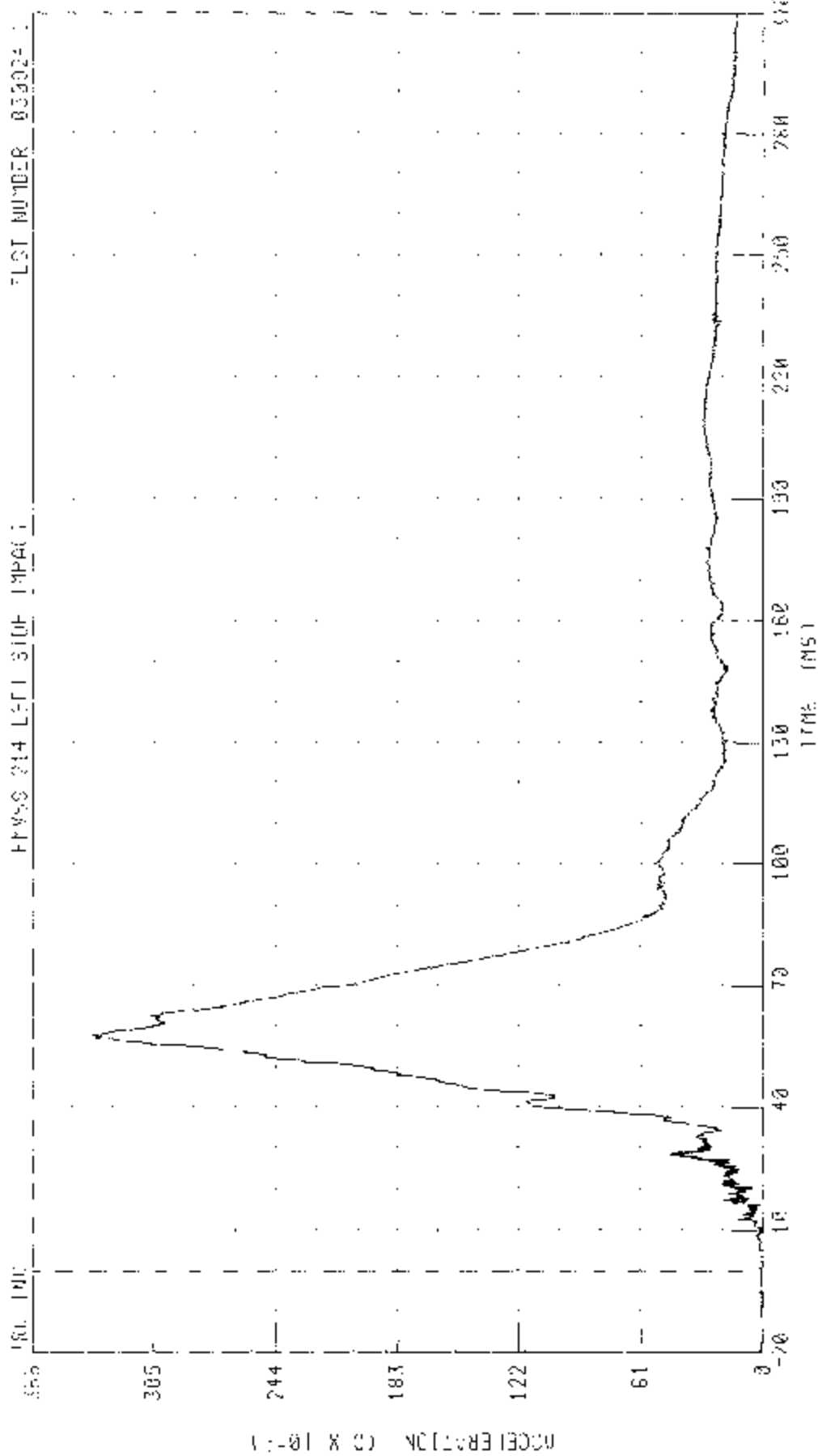


CHANNEL HEAD01 FILTER CH CLASS 1000

PEAK DATA 33 50 0 0 57.44 MS; 0 01 0 0 -17 36 MS

05:20:44 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2002 LEXUS RX350

DRIVER HEAD SQUANTANT REDUNDANT ACCELERATION



CHANNEL HEADRI FILTER ON CLASS 1000

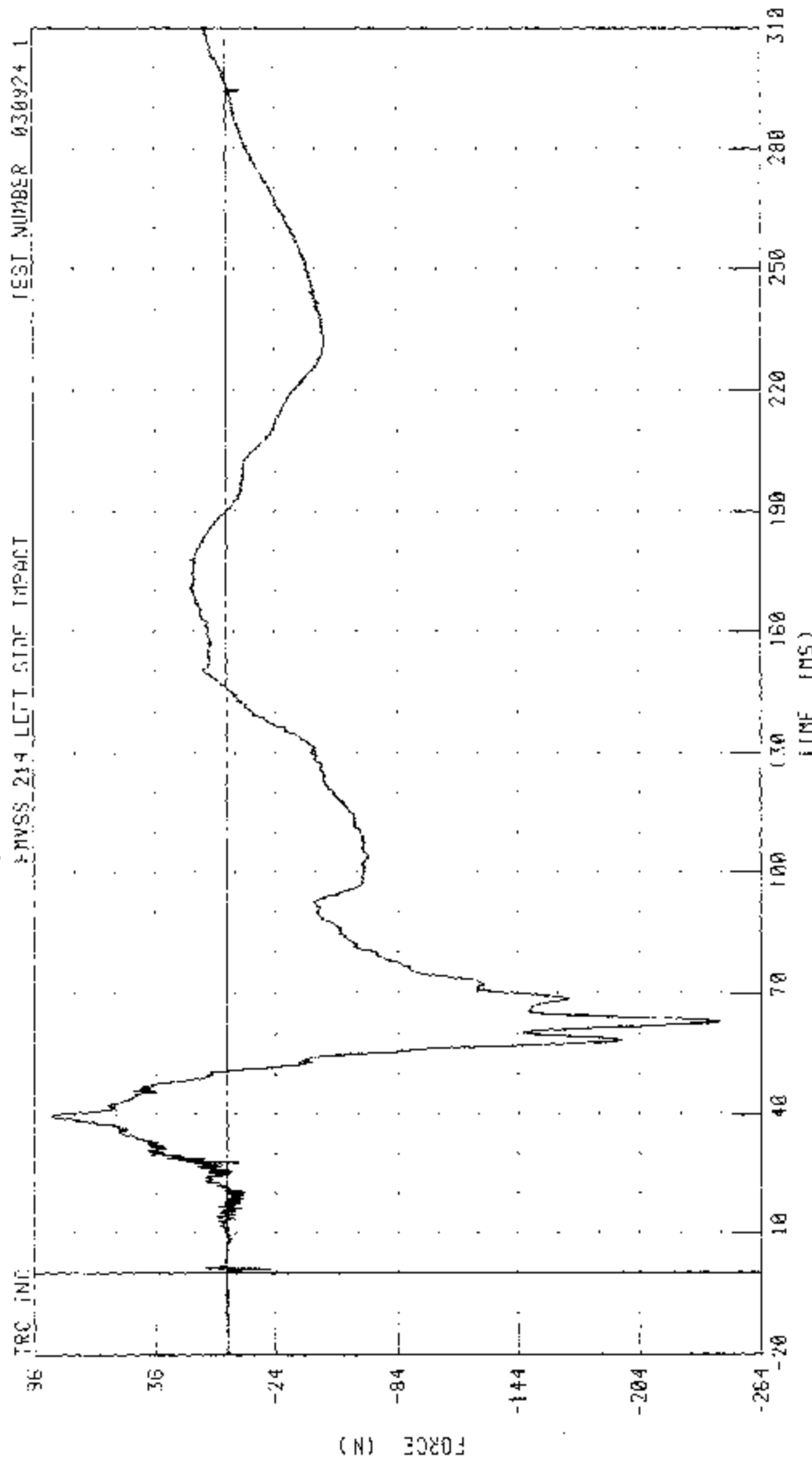
PLM2 DATA: J3 61 0 0 57 44 MS, 0 01 0 0 -10 80 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

DRIVER NECK X AXIS SHEAR FORCE

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030924-1



CHANNEL: NEKXF1 FILTER: CH CLOSS 1000

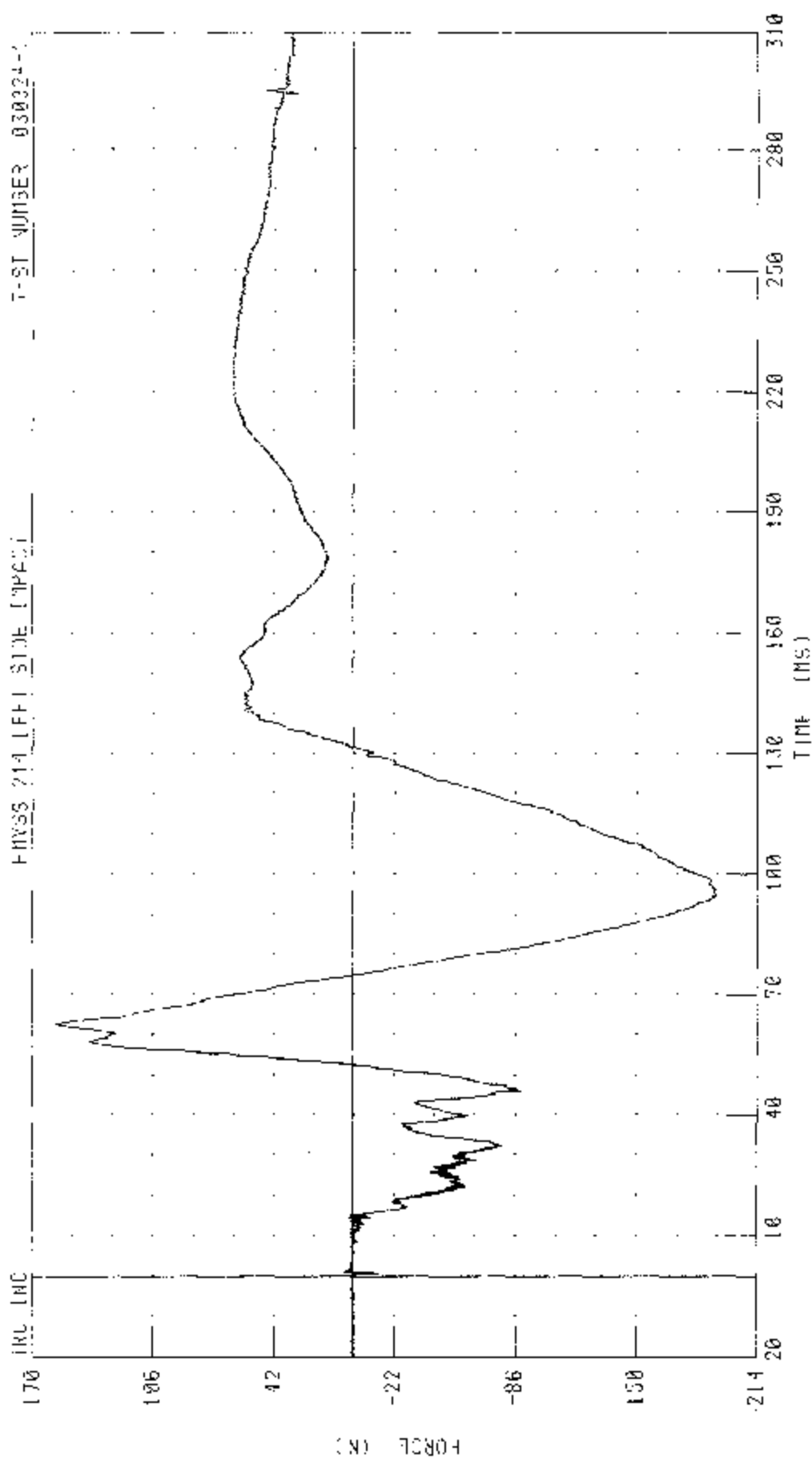
PEAK DATA 87.32 N @ 30.68 MS, -243.16 N @ 63.28 MS



55-20 KPH 30 DEGREE STOP IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2004 EXJ5 RX332

DRIVER NECK Y-Axis SHEAR FORCE

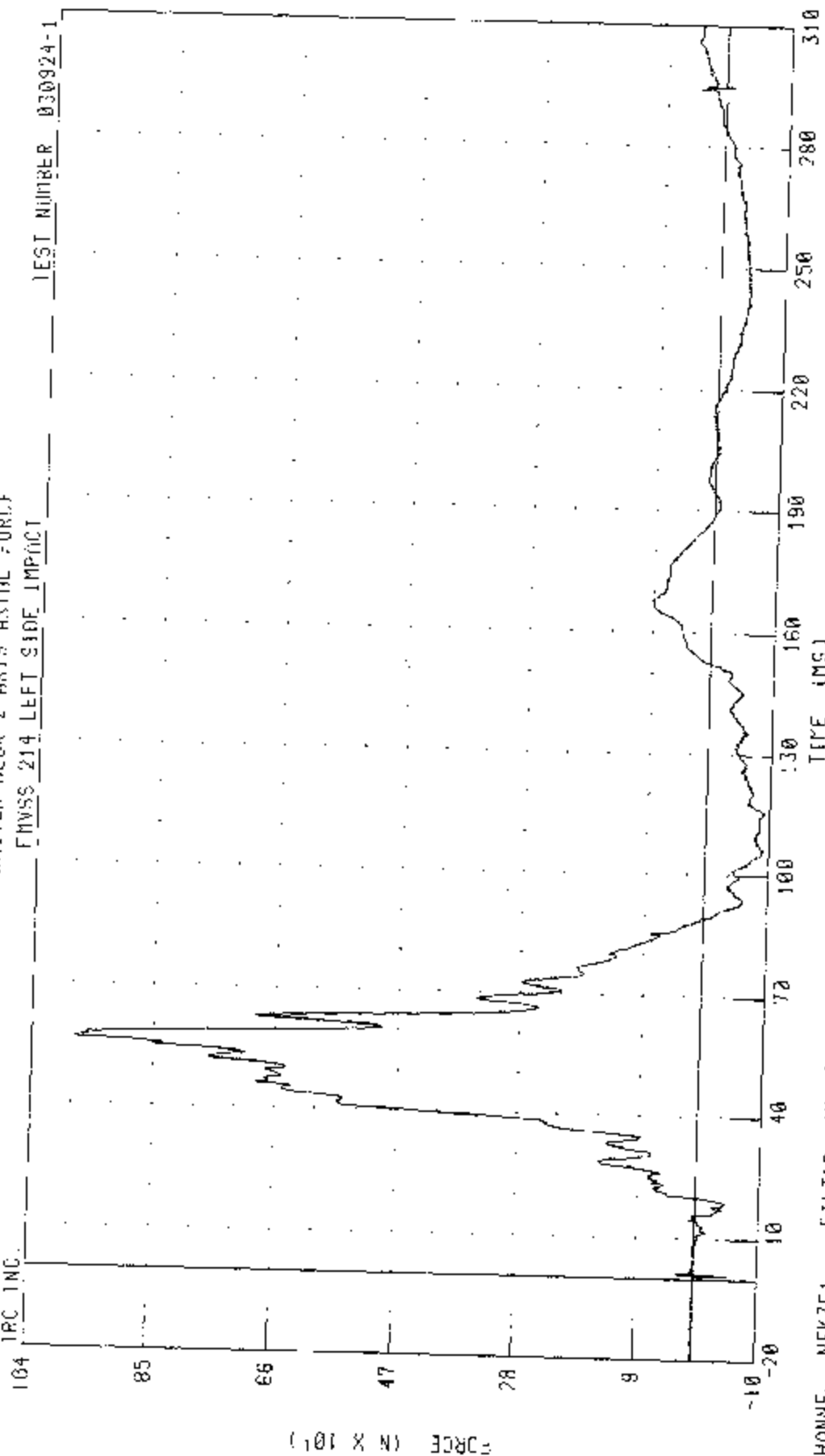
HYSS 214 LEFT SIDE IMPACT T-ST NUMBER 030324-1



LIJIANNEI NEKYF1 FILTER CH. CLASS 1000

PEAK DATA 107 79 N @ 62 64 MS; -192 54 N @ 94 77 MS

05/78 K24 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2024 LIXUS 2X330  
 DRIVER NECK Z-AXIS AXIAL FORCE



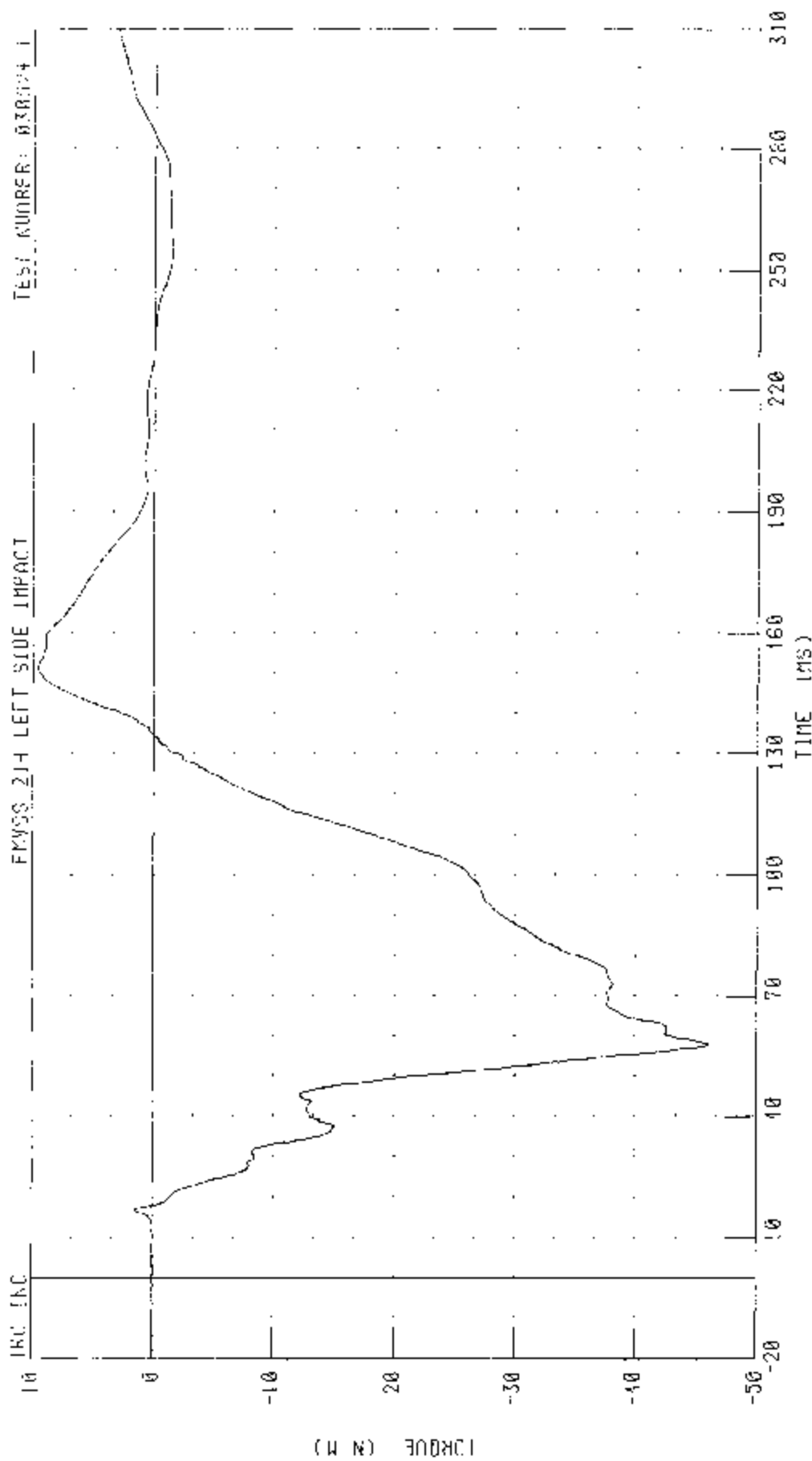
TEST NUMBER 030924-1

CHANNEL NEKZF1 FILTER CH CLASS 1000

PEAK DATA 973 46 N 8 57 20 MS; -91 71 N 8 115 36 MS

50-73 KPH 90 DEGREE SIDE IMPACT INVOLVING DEFORMABLE BARRIER INTO P-1 SUB OF 2004 EXUS R435M

DRIVER NECK MOMENT ABOUT X AXIS



CHANNEL: NFKXM1 FILTER: CH CLASS 600

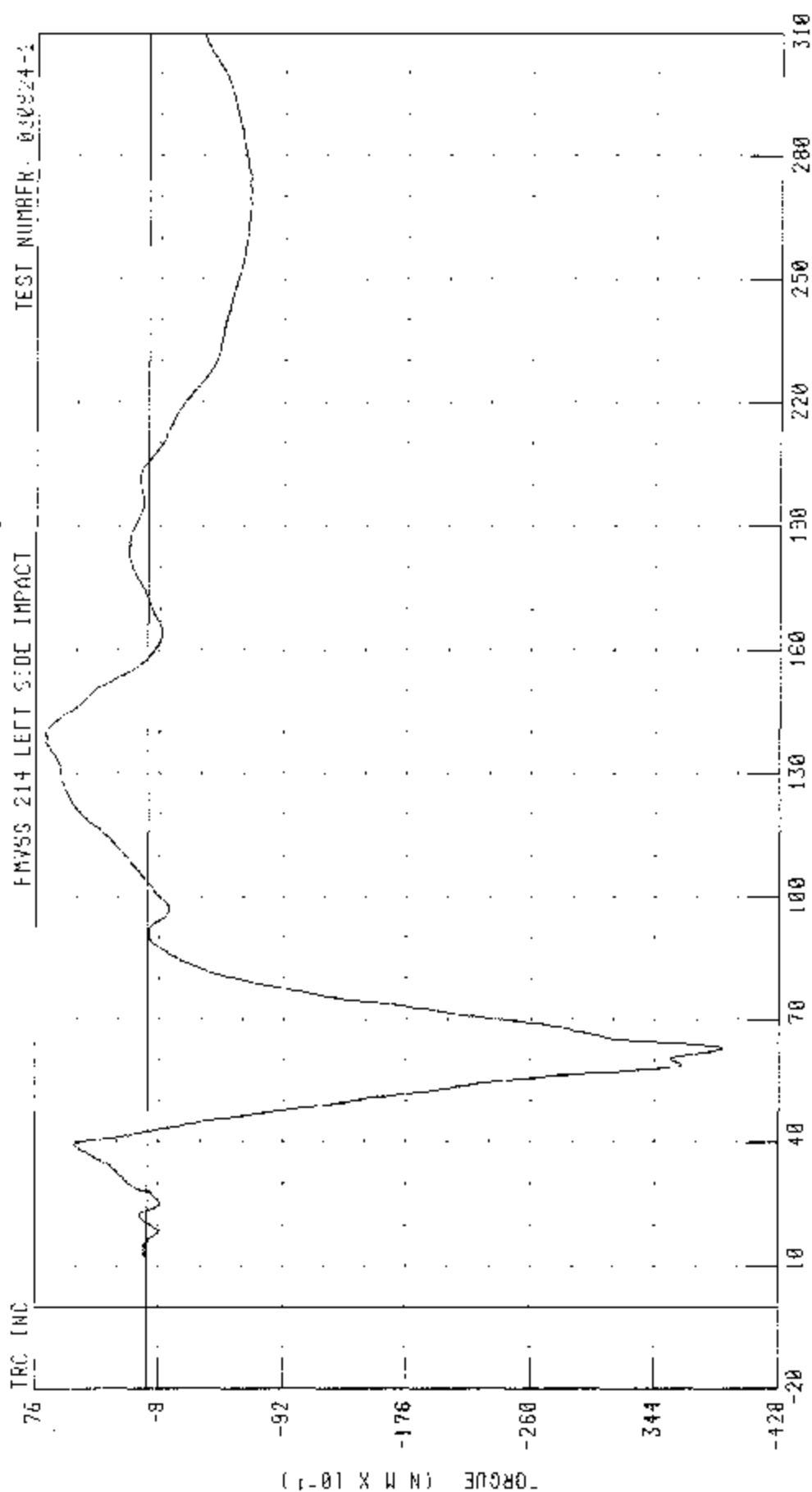
PEAK DATA: 0 57 N M @ 151 60 MS, -45 94 N M @ 97 92 MS

55.28 KPA 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX350

DRIVER NECK MOMENT ABOUT Y AXIS

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030924-1



CHANNEL: NEKYN1 FILTER: CH CLASS 600

PEAK DATA: 6 92 V M B 139.60 MS, -39 00 N M B 63 12 MS

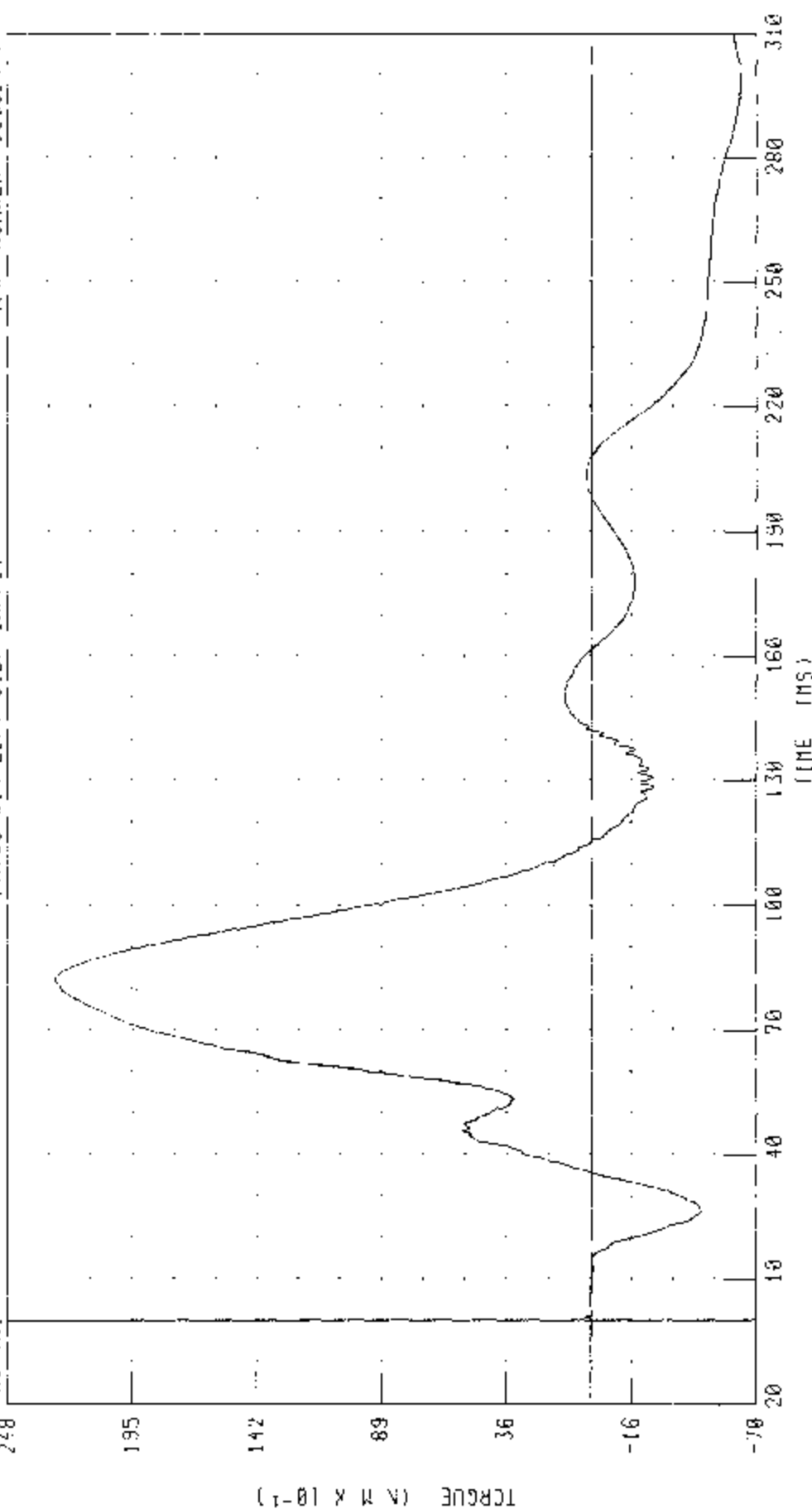
55726 KPH 92 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

DRIVER NECK MOMENT ABOUT Z AXIS

TEST NUMBER: 030924-1

FRONT 214 LEFT SIDE IMPACT

TRC INC



CHANNEL: NEKZM1 FILTER: 0.1 CLASS 600

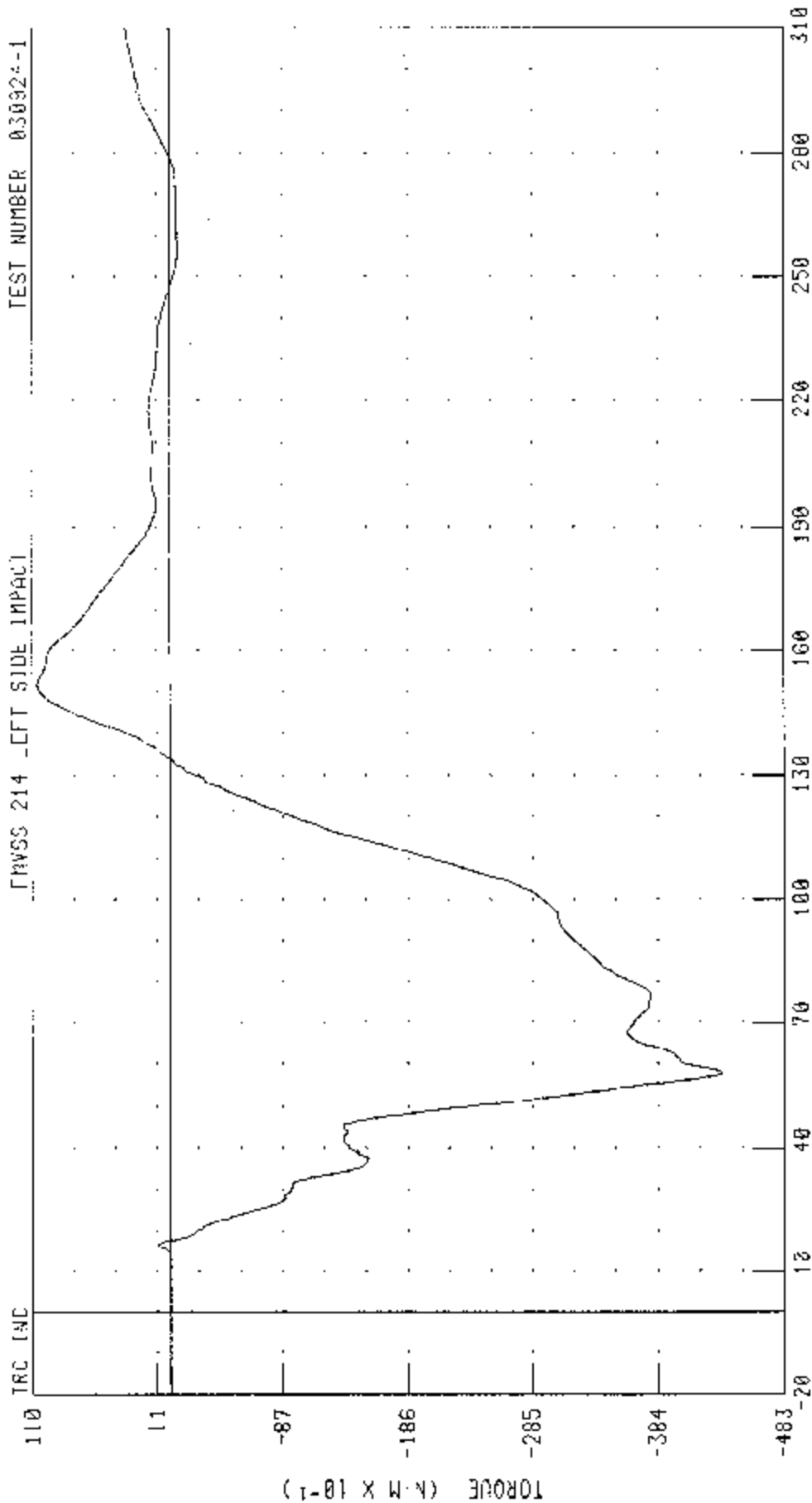
PEAK DATA: 22.74 N M @ 22.74 MS, -6.38 N M @ 297.78 MS

55/28 4PH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

DRIVER NECK OCCIPITAL CONDYLE MOMENT ABOUT X AXIS

TEST NUMBER 030924-1

CHASS 214 LEFT SIDE IMPACT



TIME (MS)

CHANNEL: NK0X01 FILTER: CH. CLASS 600

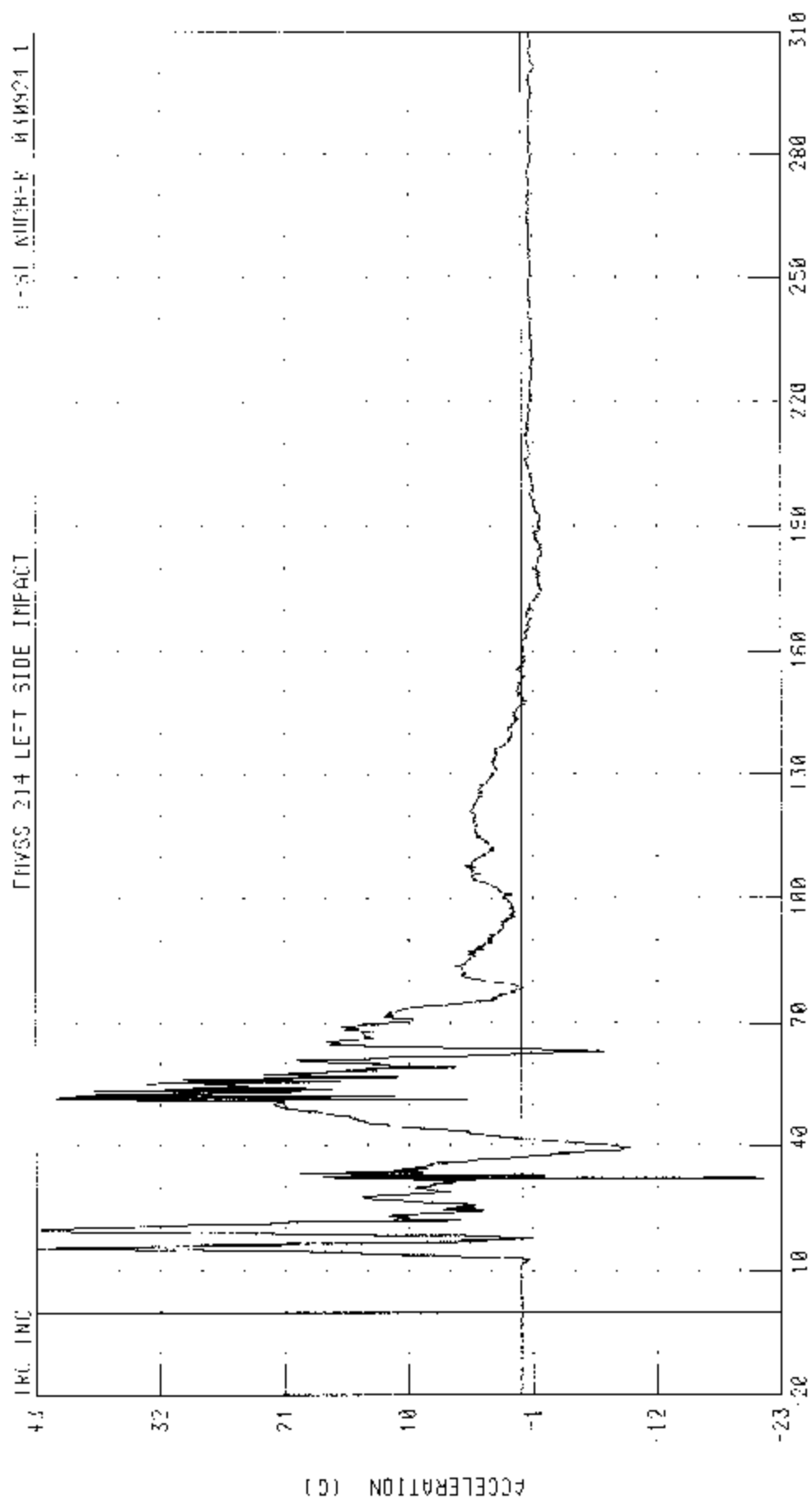
PEAK DATA 10 59 N M @ 151 68 MS; -43 51 N M @ 57 84 MS

55/23 KPI 90 LEFT SIDE IMPACT (MOVING DEFORMABLE BARRIER: INTO LEFT SIDE OF 20K4 FLEXIS AXISS)

DRIVER UPPER RIG Y AXIS ACCELERATION

IMPACT NUMBER 414924 1

IMPACT 214 LEFT SIDE IMPACT



TIME (MS)

CHANNEL LUPY61 FILTER CIL CLASS 1000

PEAK DATA 49 88 G @ 15.52 MS, -21 42 G @ 32 08 MS

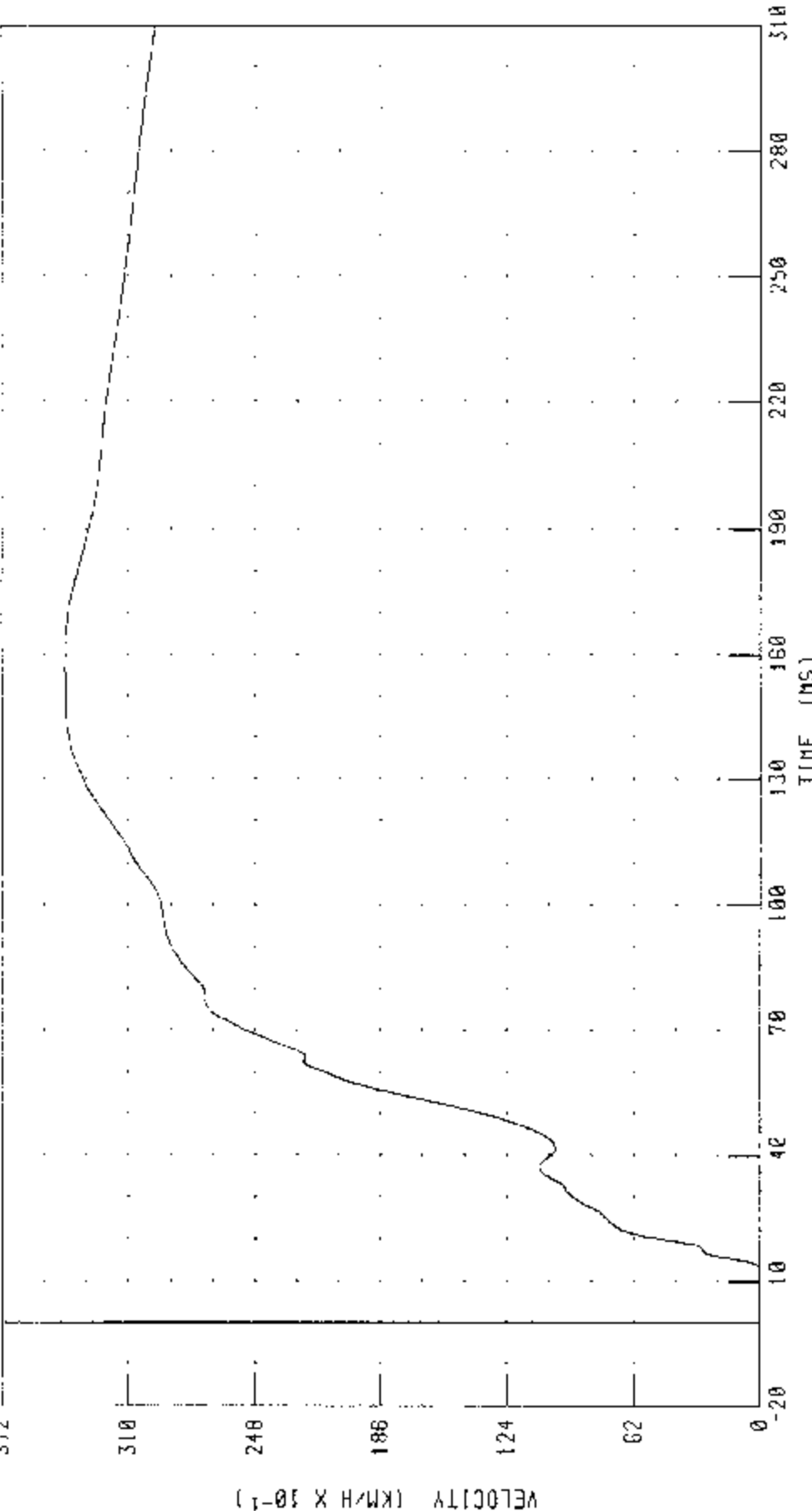
55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARrier) INTO LEFT SIDE OF 2004 LEXUS RX330

DRIVER UPPER RIB Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030924-1

372 TRC INC.



CHANNEL LURVY1 FILTER CH CLASS 100

PEAK DATA: 34 09 KM/H @ 156 48 MS, 0 00 KM/H @ 0 00 MS



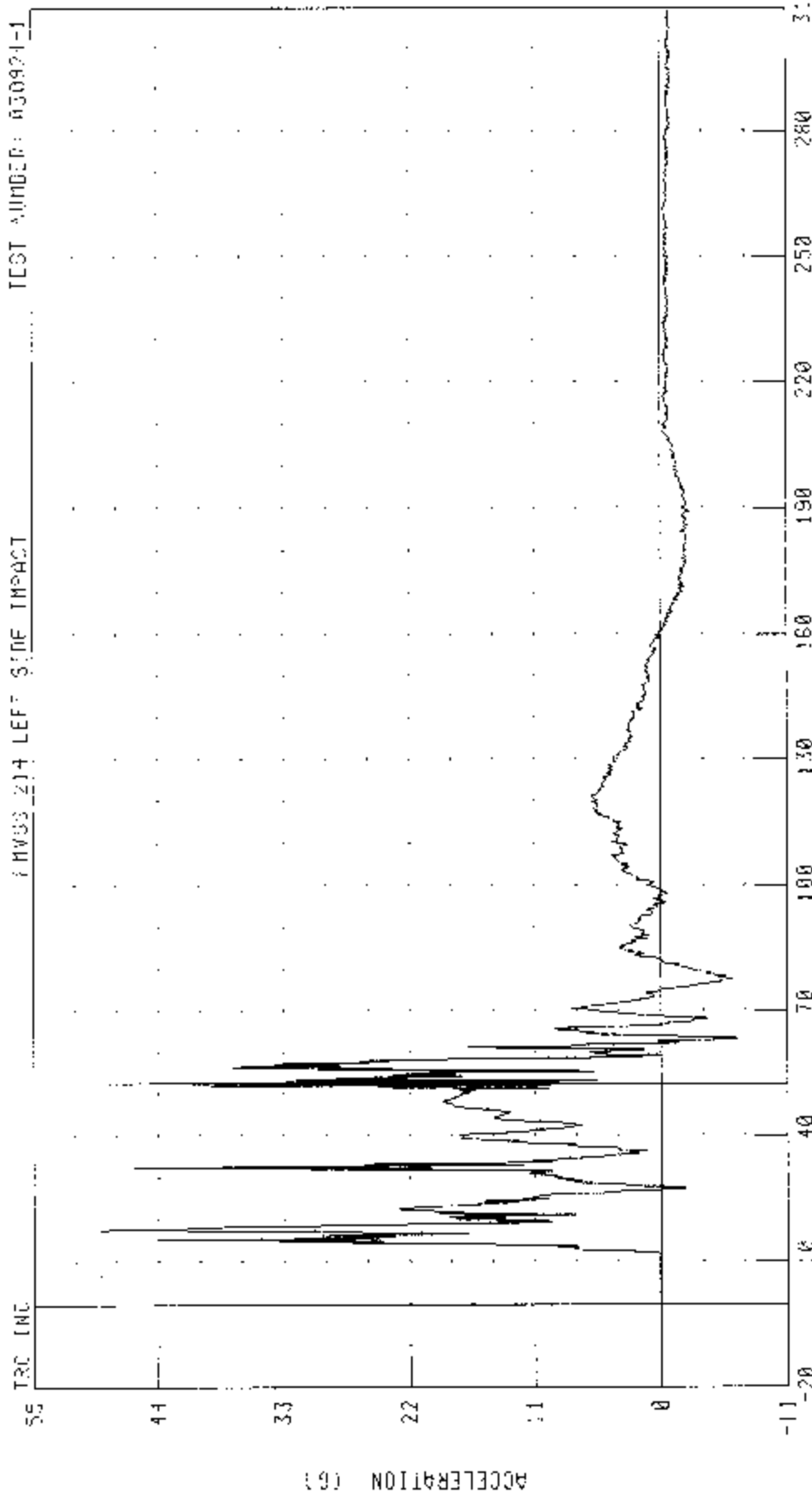
55/20 MPH SW INGRESS SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

DRIVER LOWER RIO Y-AXIS ACCELERATION

TEST NUMBER: 030924-1

INVESTIGATION LEFT SIDE IMPACT

TRC INC



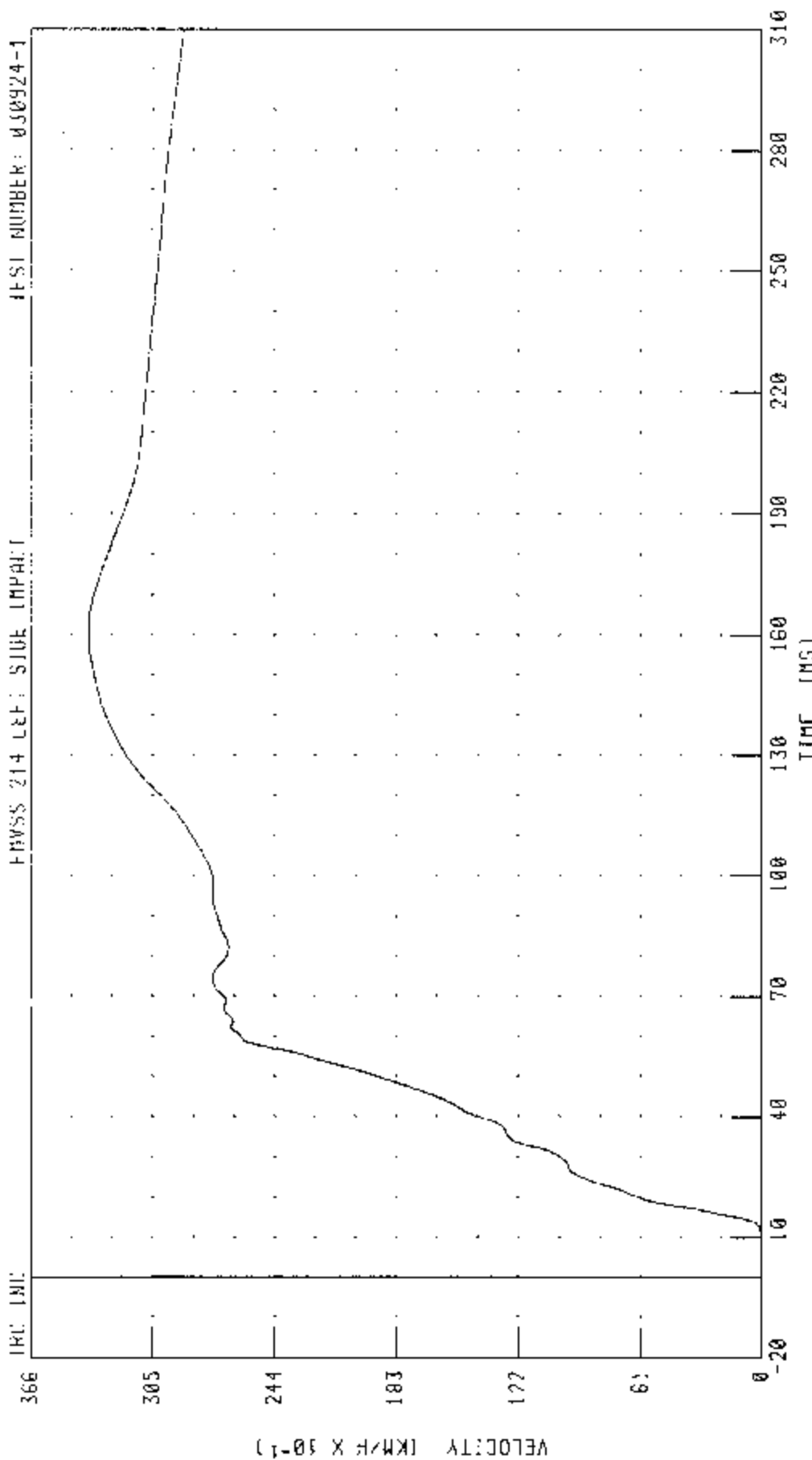
CHANNEL 1 LLRYC1 FILTER CH. CLASS 1000

55/20 KPH 50 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

DRIVER LOWER RIB Y-AXIS VELOCITY

TEST NUMBER: 030924-1

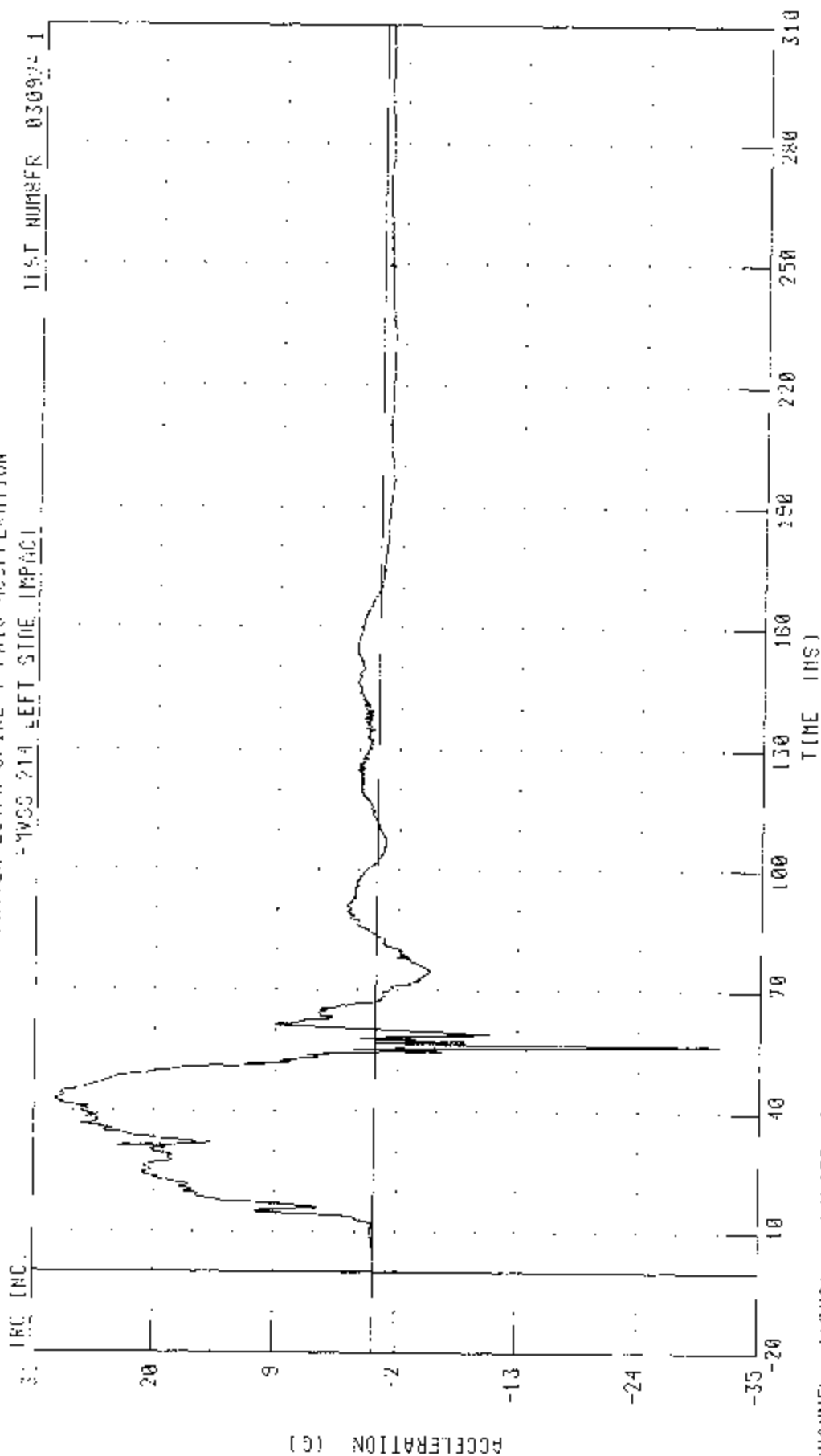
FWSS 214 LEFT SIDE IMPACT



CHANNEL: LLRYW1 FILTER: CH CLASS 180

PEAK DATA: 33.69 KM/H @ 160.00 MS; 0.00 KM/H @ 0.00 MS

55/25 MPH 90 DEGREE STOP IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2034 LEXUS RX330  
 DRIVER LOWER SPIKE Y-AXIS ACCELERATION



CHANNEL 12801 FILTER CH. CROSS 1000  
 PEAK DATA 29 00 0 @ 43 28 MS, -31.37 0 0 56 32 MS

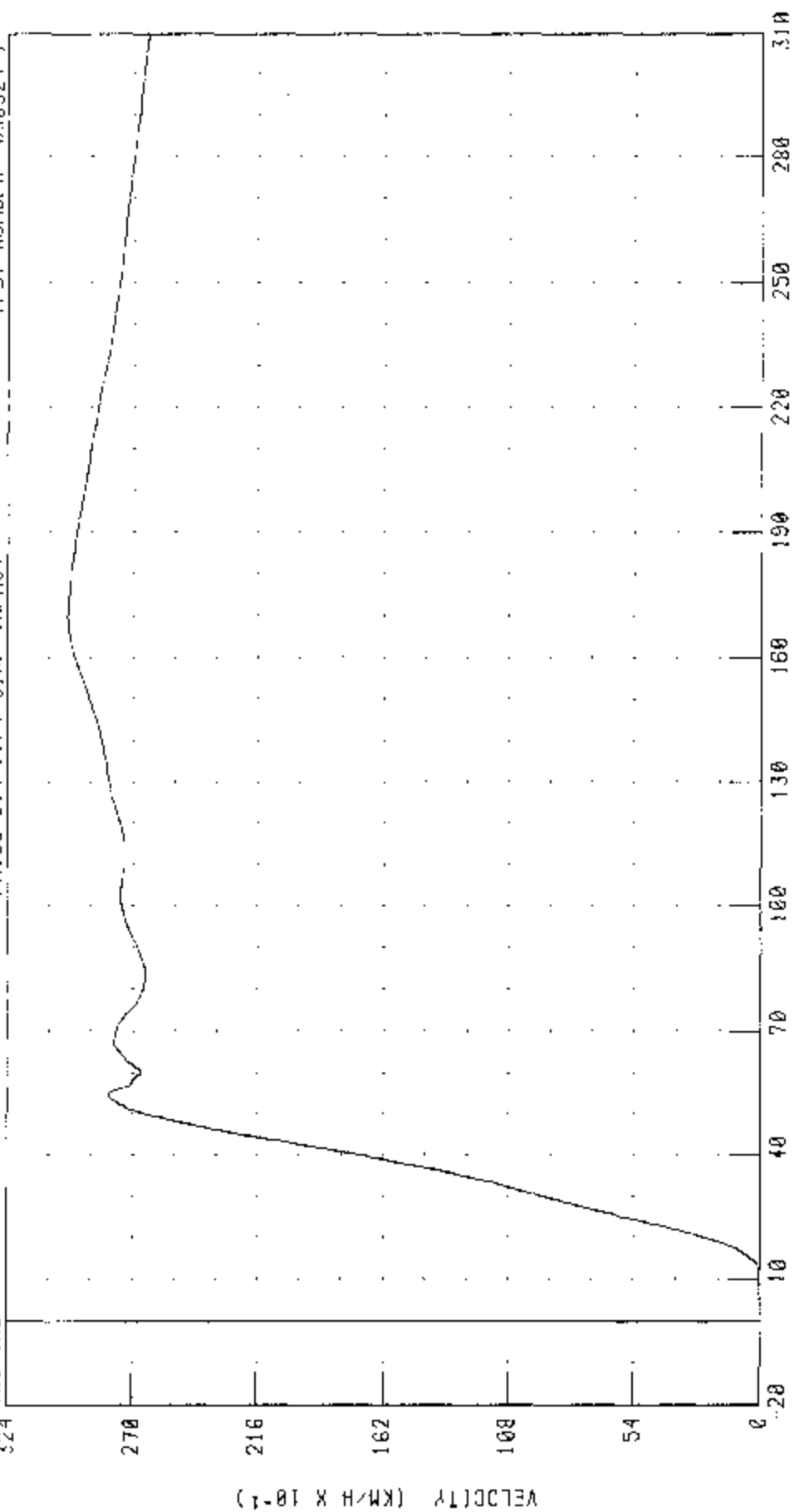
55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

DRIVER LOWER SPINE Y-AXIS VELOCITY

TRC INC

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030924-1



TIME (MS)

CHANNEL: T12YV1

FILTER: CH CLASS 180

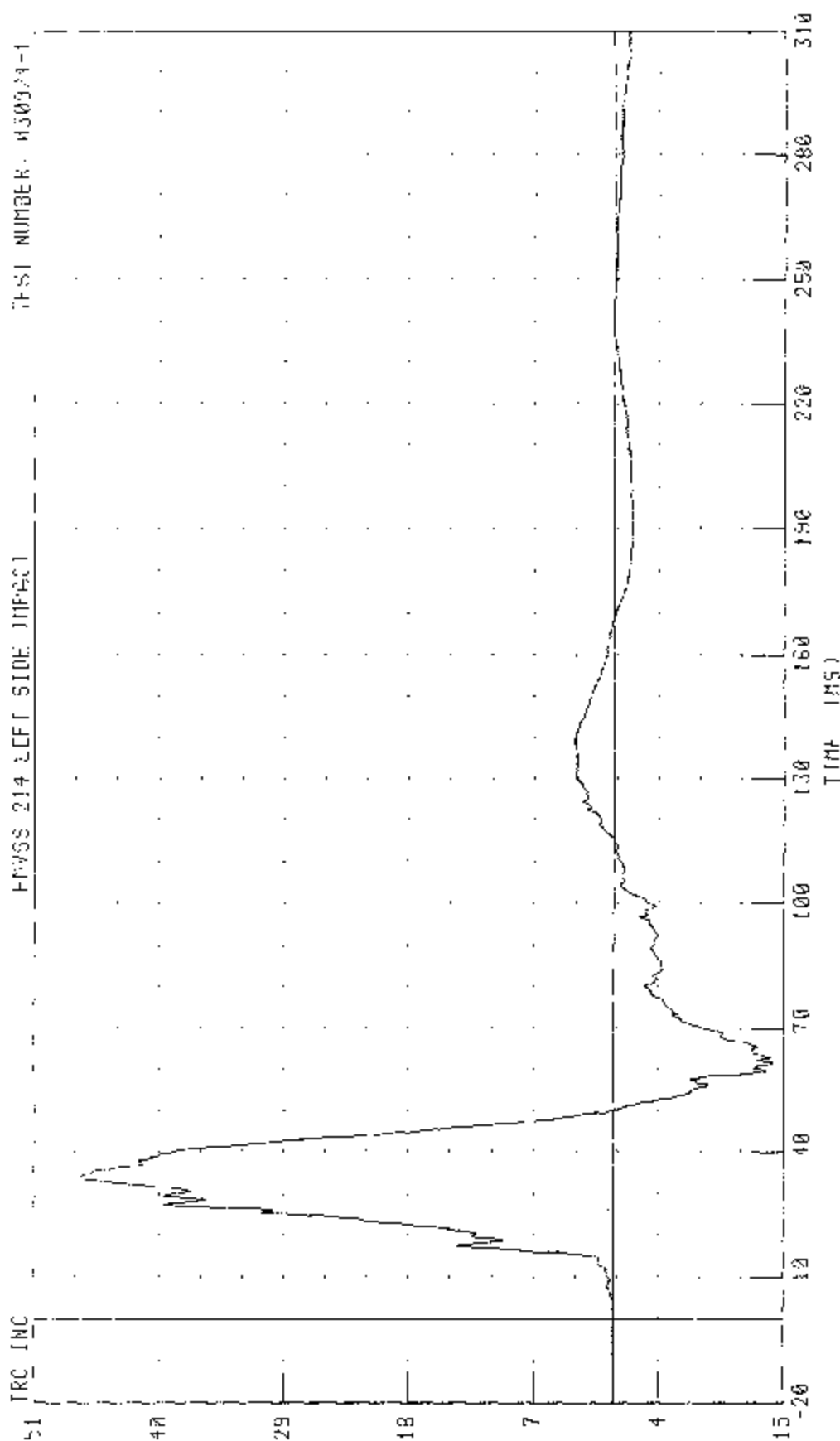
PEAK DATA: 29 78 KM/H @ 165 68 MS, 0 00 KM/H @ 0 00 MS

55/28 MPH 30 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2004 LEXUS RX350

DRIVER PELVIS Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: H30924-1



ACCELERATION (G)

030924-1

B-31

CHANNEL PELVY01 FILTER CH CLASS 1000

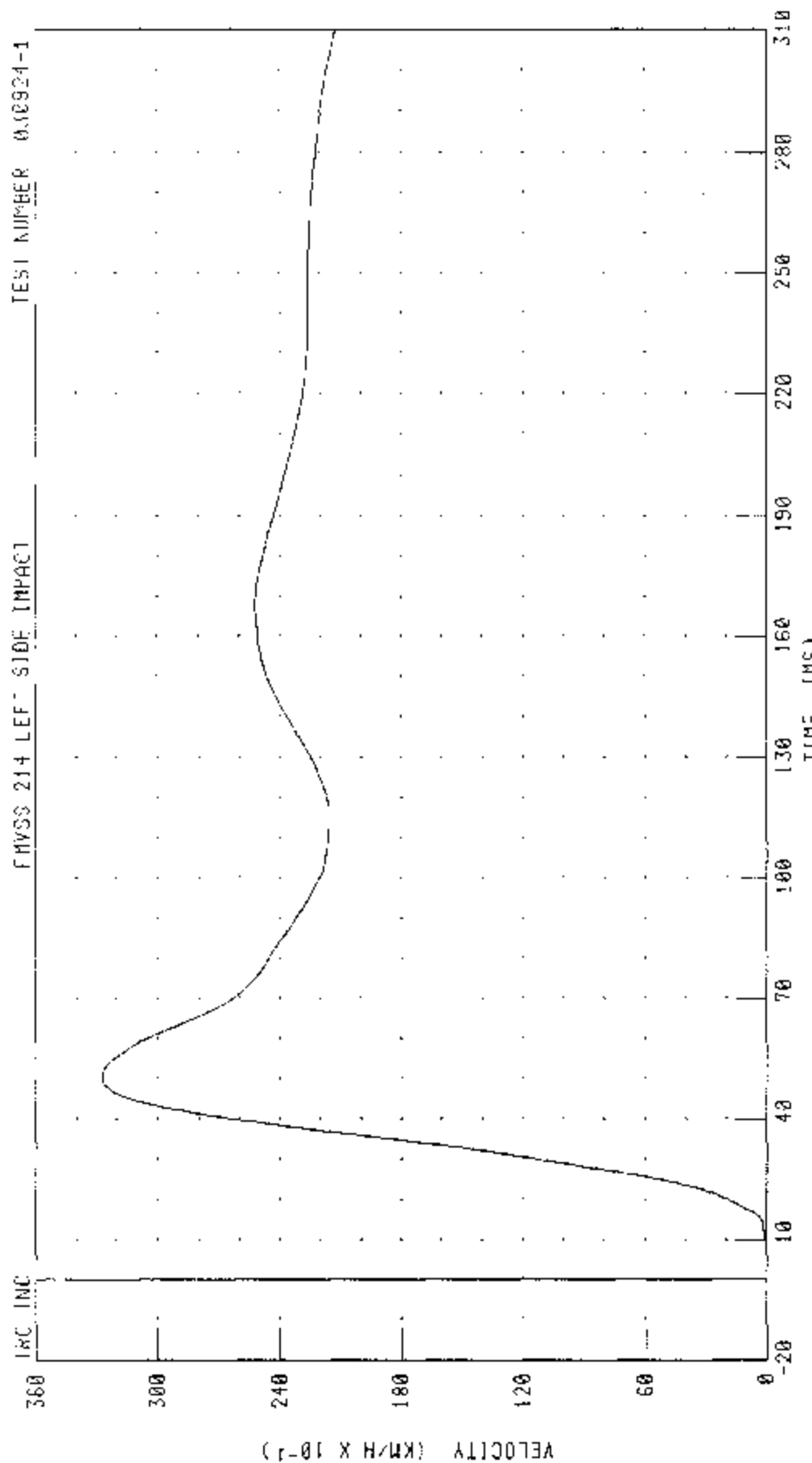
TIME (MS)

PLAK DATA: 40.75 0 0 34 36 MS, -14 12 0 0 0 0 13

55/26 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

DRIVER PELVIS Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT TEST NUMBER 030924-1



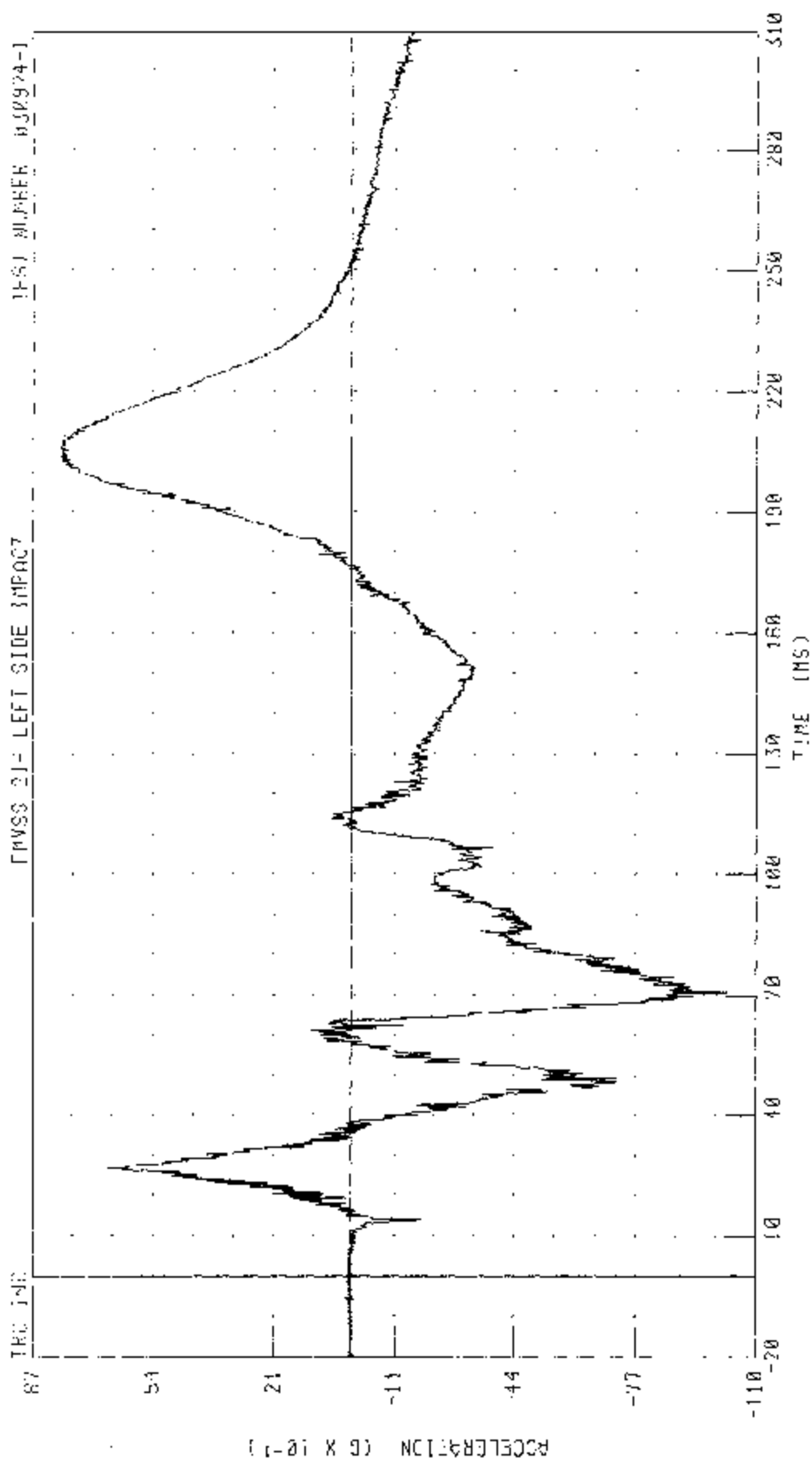
CHANNEL PEVYV1 FILTER CH CLASS 180

PEAK DATA 32.73 KM/H @ 50.74 MS, 0.00 KM/H @ 0.00 MS

55/28 MPH 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO (LT) SIDE 0: 2804 LEXUS RX330

LEFT REAR PASSENGER HEAD X-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT TEST NUMBER 030924-1



CHANNEL HEADXG4 FULLER CII CLASS 1000

PEAK DATA 795 G @ 203.92 MS; -10.28 G @ 70.80 MS

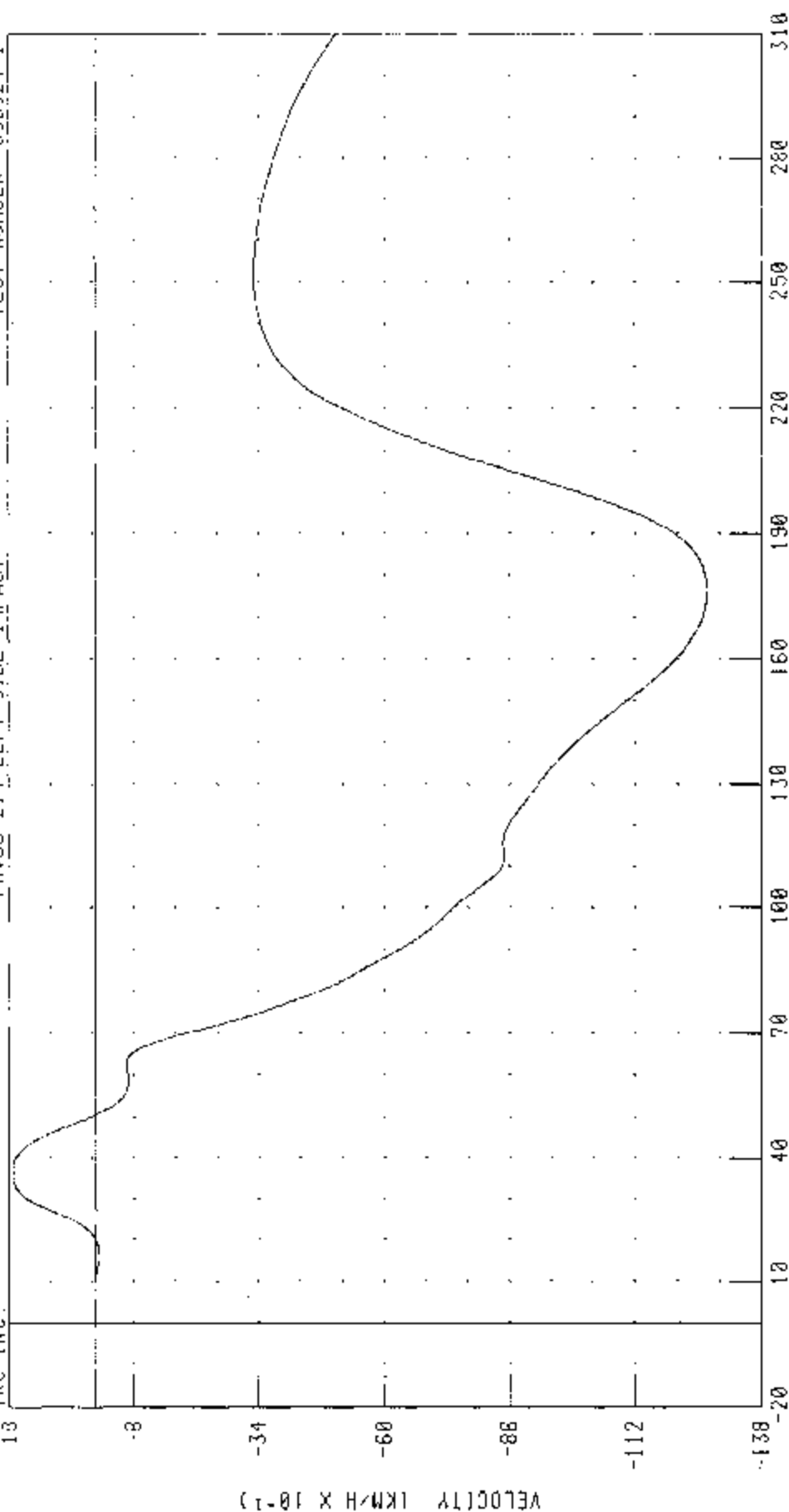
55.7/8 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER HEAD X-AXIS VELOCITY

TRC INC.

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030924 1



TIME (MS)

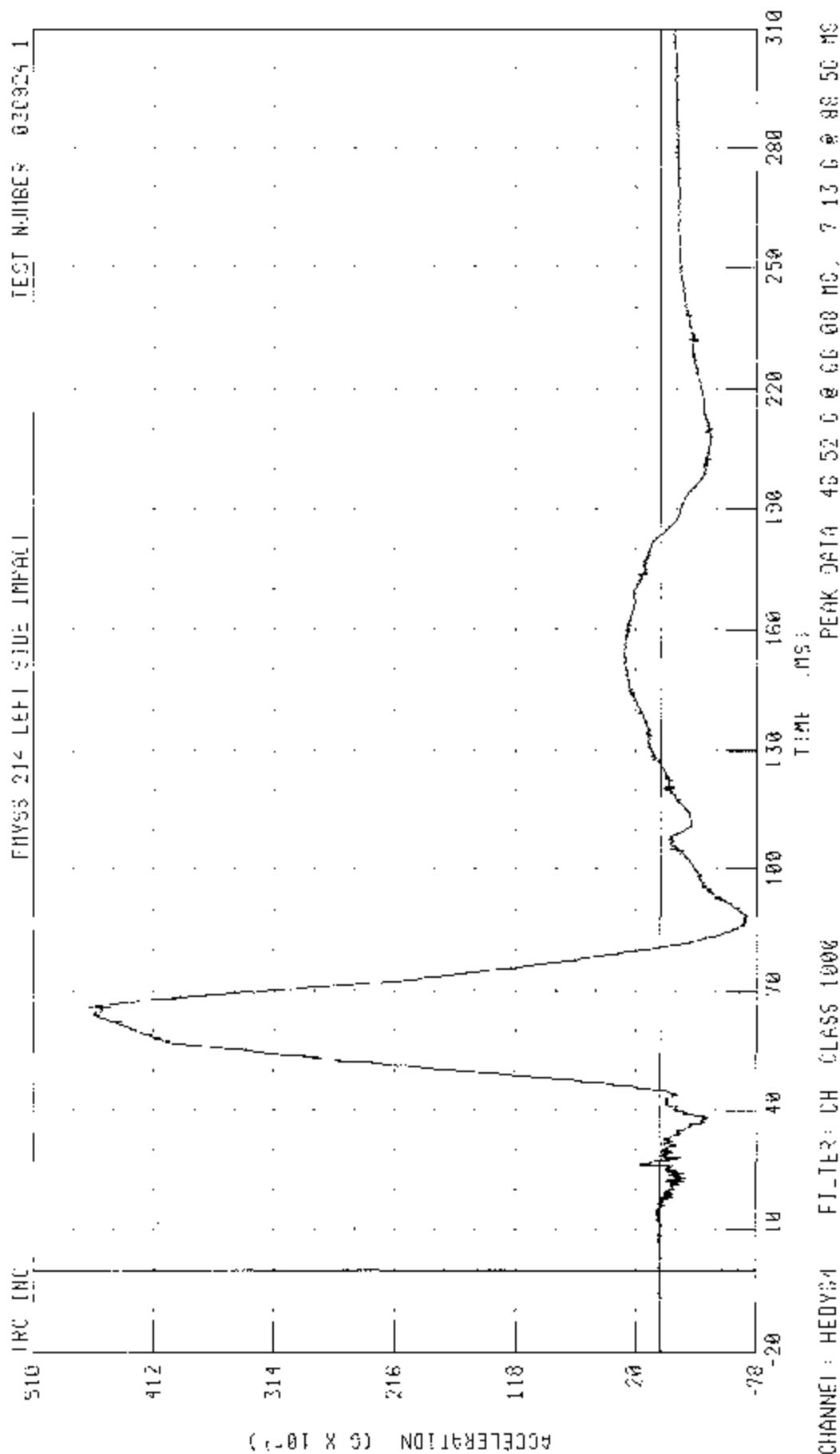
CHANNEL: HEDXV4 FILTER: CH CLASS 180

PEAK DATA: 1 75 KM/H @ 36 56 MS; -12 67 KM/H @ 176 72 MS



45/228 4PT 50 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER HEAD Y-AXIS ACCELERATION



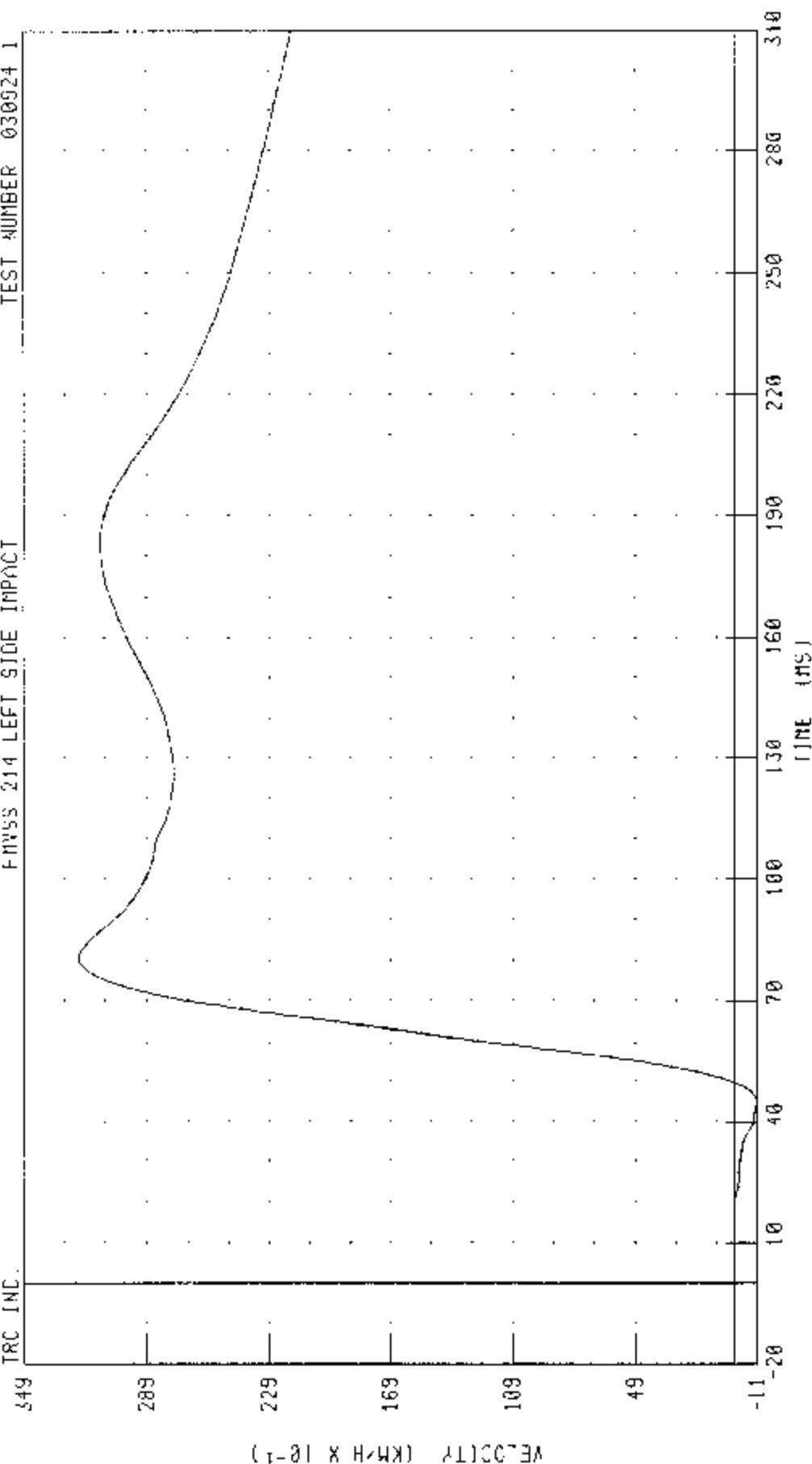
55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER HEAD Y-AXIS VELOCITY

TEST NUMBER 030924 1

FMVSS 214 LEFT SIDE IMPACT

TRC INC.



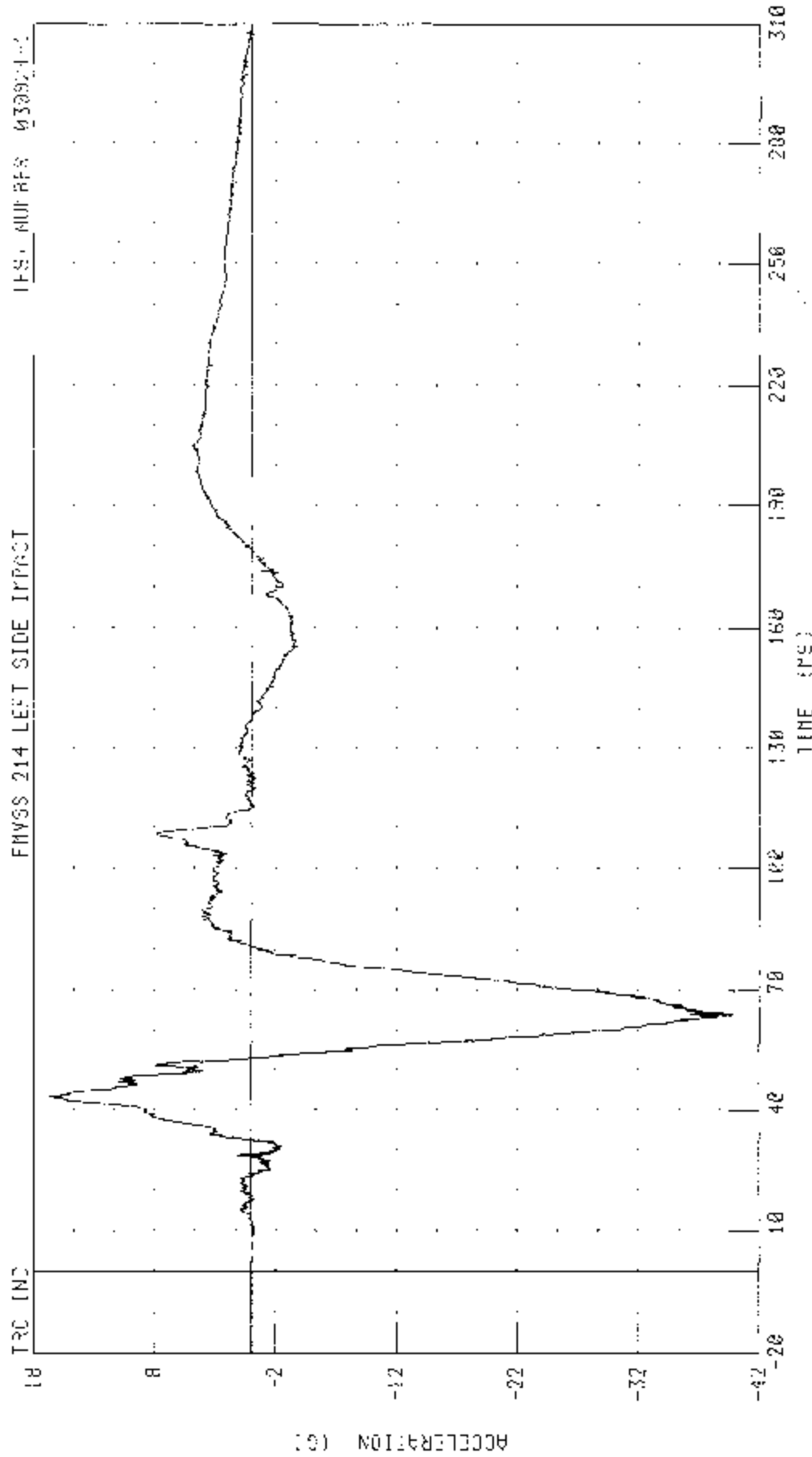
TIME (MS)

CHANNEL: HEDYV4 FILTER: CH. CLASS 180

PEAK DATA: 32.19 KM/H @ 80.64 MS; -1.05 KM/H @ 45.04 MS

05/28 KPH 90 DEGREE SIDE IMPACT INVOLVING DIFFERENTIAL BARRIERS INTO LEFT SIDE OF 1984 LEXUS RX350

LEFT REAR PASSENGER HEAD Z-AXIS ACCELERATION



CHANNEL HED204 FILTER CH CLASS 1000

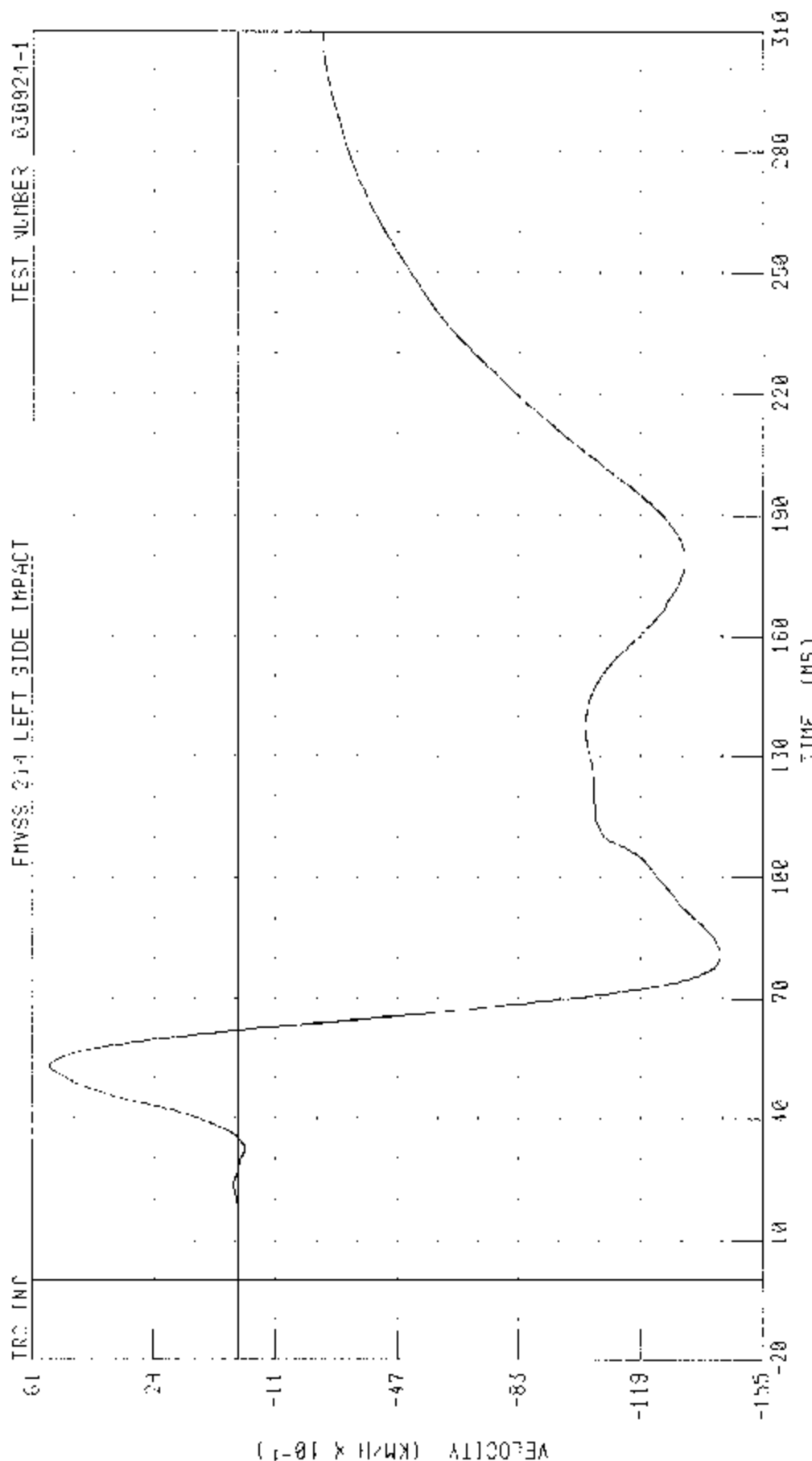
PEAK DATA 10 84 0 0 43 60 MS, -39 77 0 0 64 08 MS

55.26 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER HEAD Z-AXIS VELOCITY

TEST NUMBER 030924-1

FMVSS 214 LEFT SIDE IMPACT



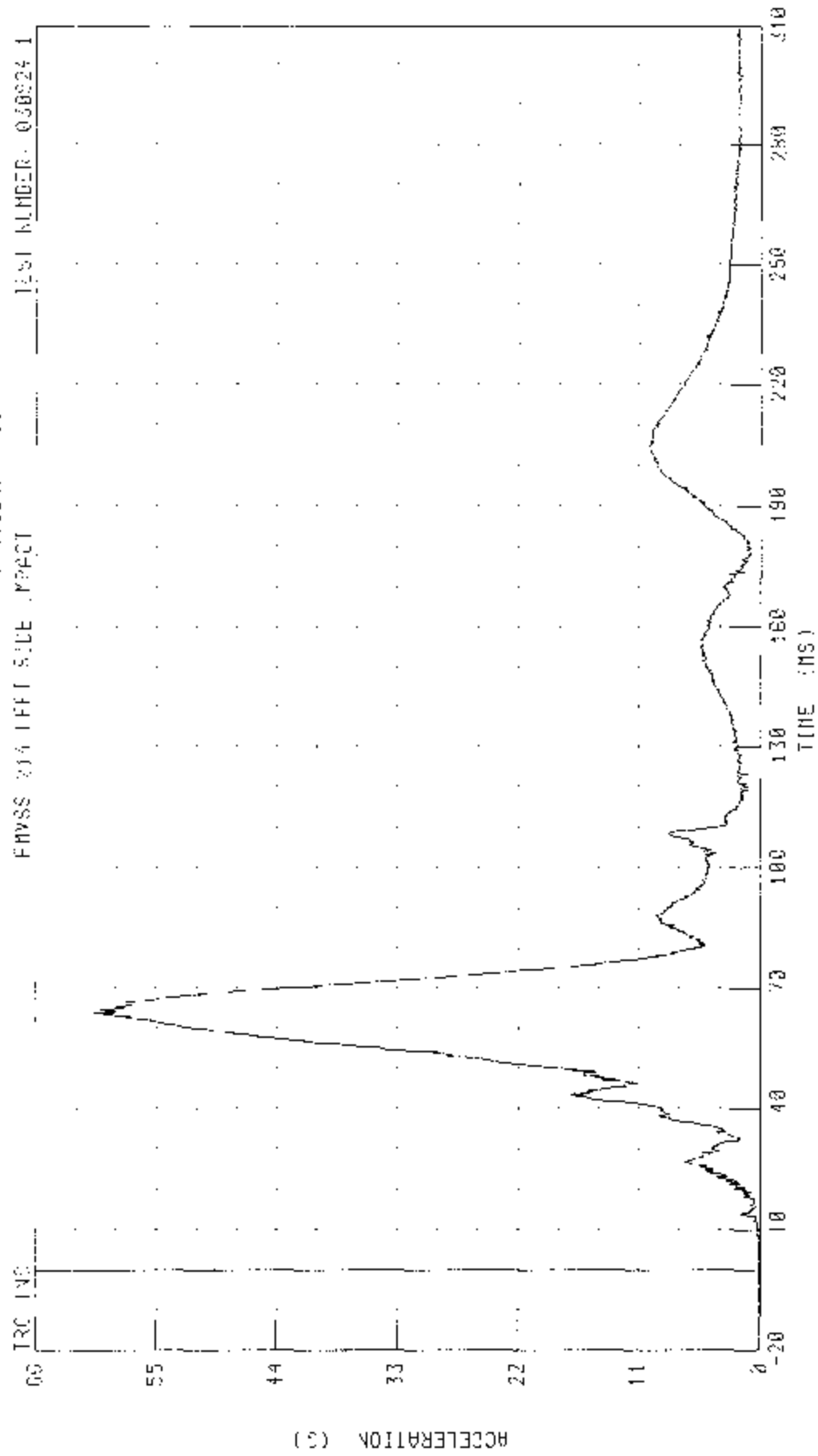
CHANNEL HED2V4 FILTER CH CLASS 180

PEAK DATA 5.60 KPH @ 52.56 MS, -14.26 KPH @ 31.24 MS

55-20 MPH 90 DEGREE SIDE IMPACT (MOVING DEFENDABLE BARRIERS) INTO LEFT SIDE OF 1304 LEXUS RX330

LEFT REAR PASSENGER SEAT RESULTANT ACCELERATION

FRYSS 214 LEFT SIDE IMPACT TEST NUMBER: 030924-1



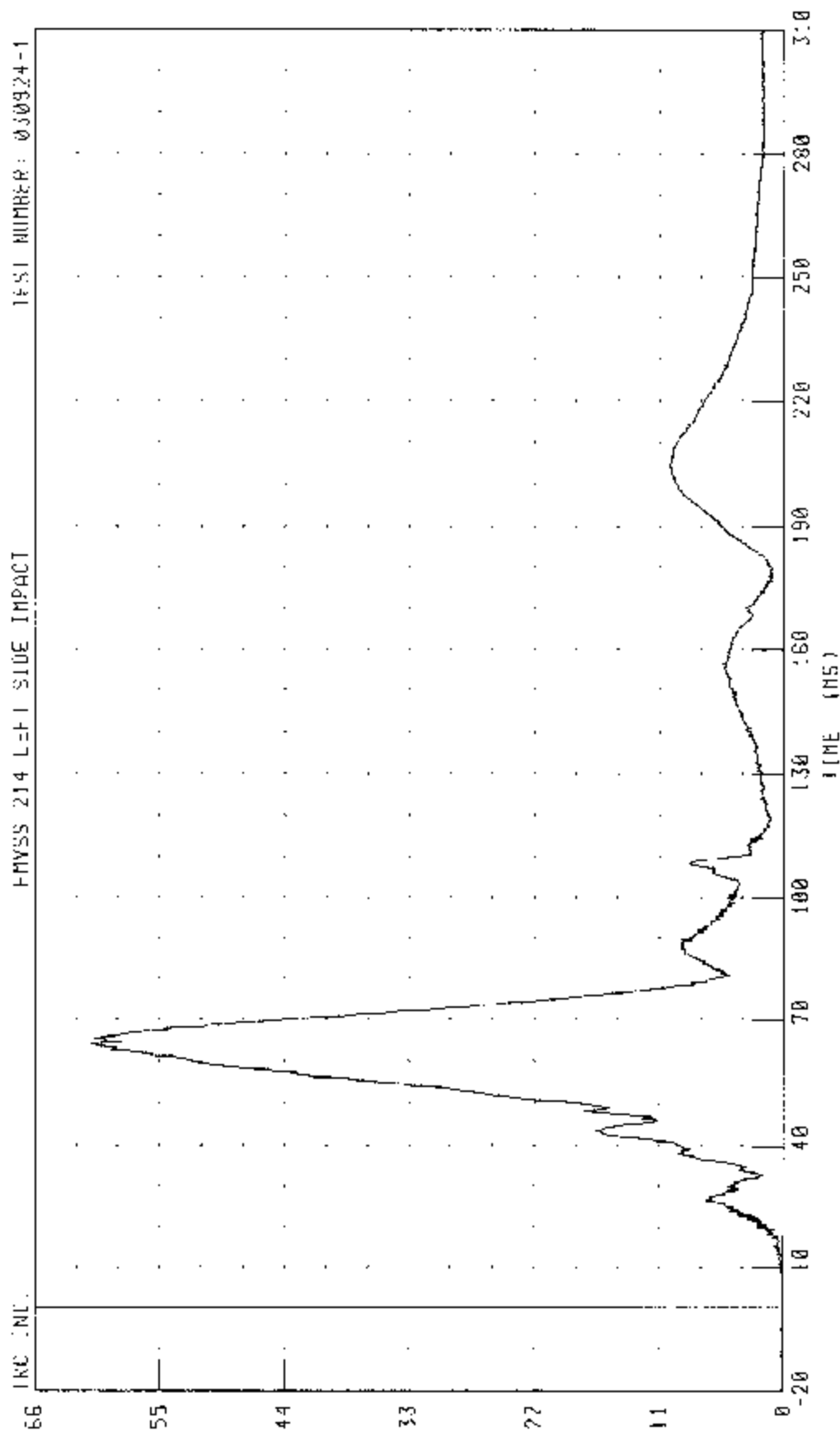
CHANNEL 4E004 FILTER CH. CLASS 1000

PEAK DATA: 03 00 01 00 MS, 0 02 0 0 -10 90 MS

55/20 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER HEAD RESULTANT RHO/INJURY ACCELERATION

FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 030924-1

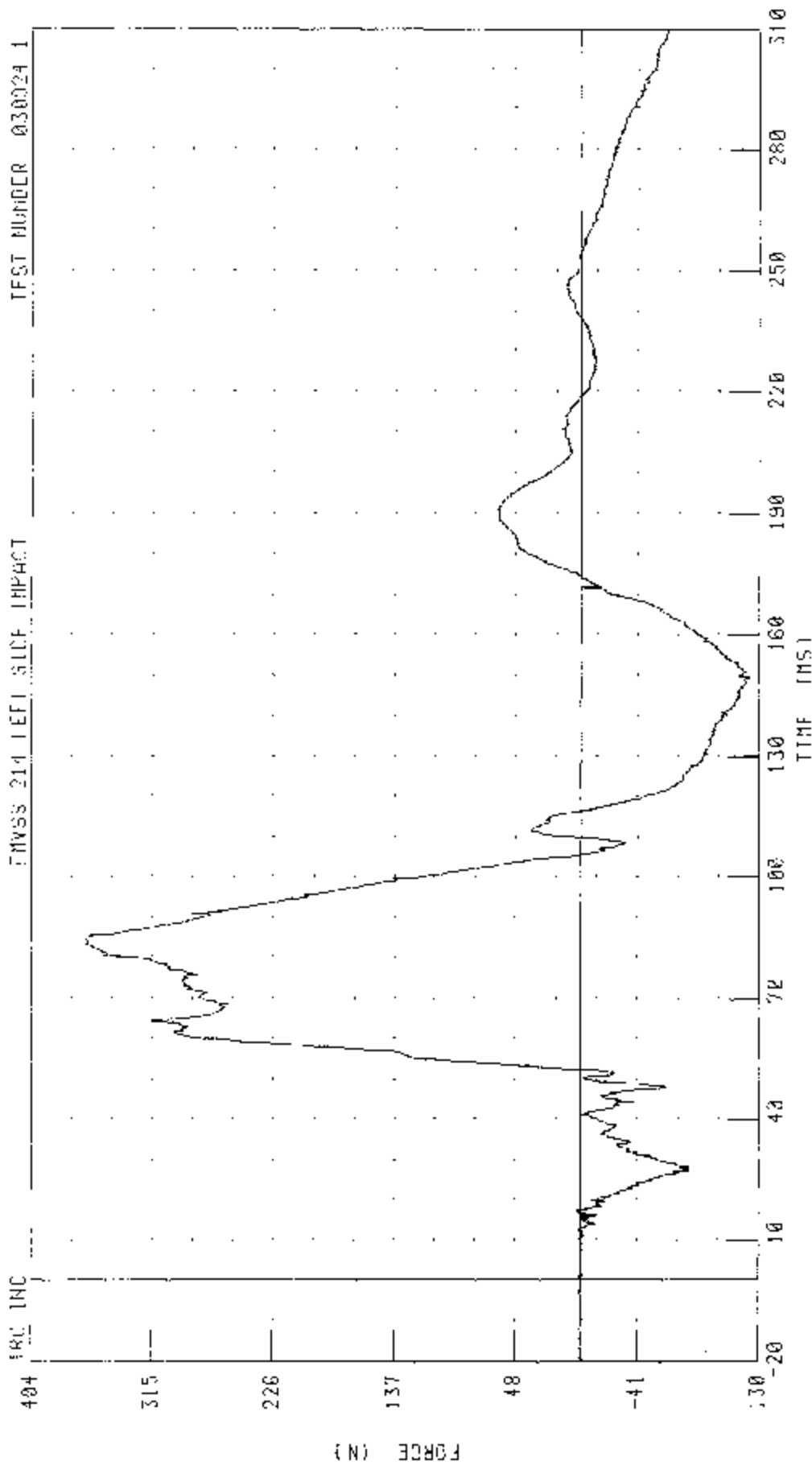


CHANNEL HEADR4 FILTER CII CLASS 1000

PEAK DATA: 61 10 6 64 32 MS, 2.01 G @ 10.00 MS

55/25 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER W/OCK X-AXIS SHEAR FORCE

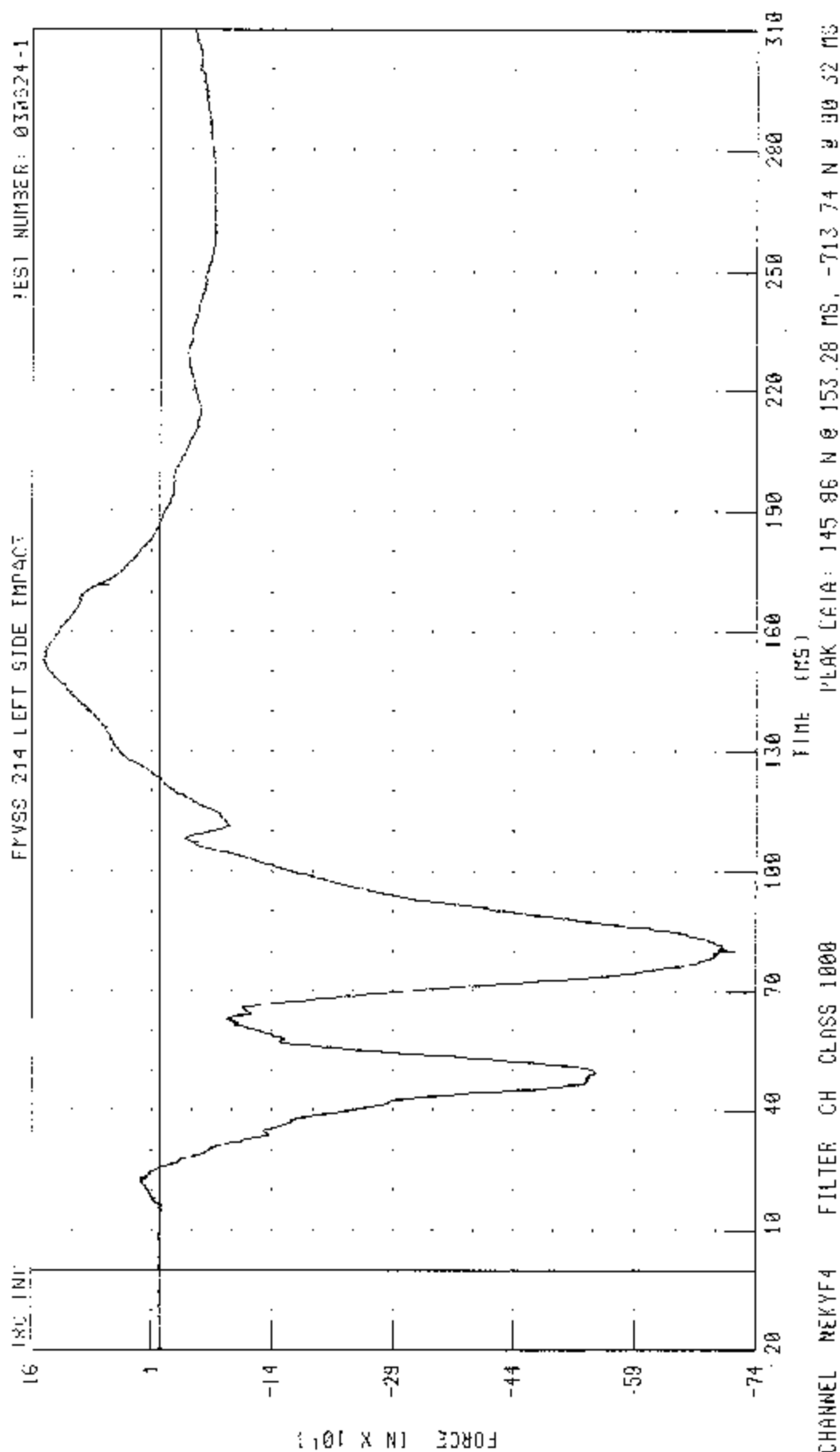


CHANNEL: NEKX54 FILTER: CH CLASS 1300

PEAK DATA 364 30 N @ 83 29 MS, -173 00 N @ 145 52 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

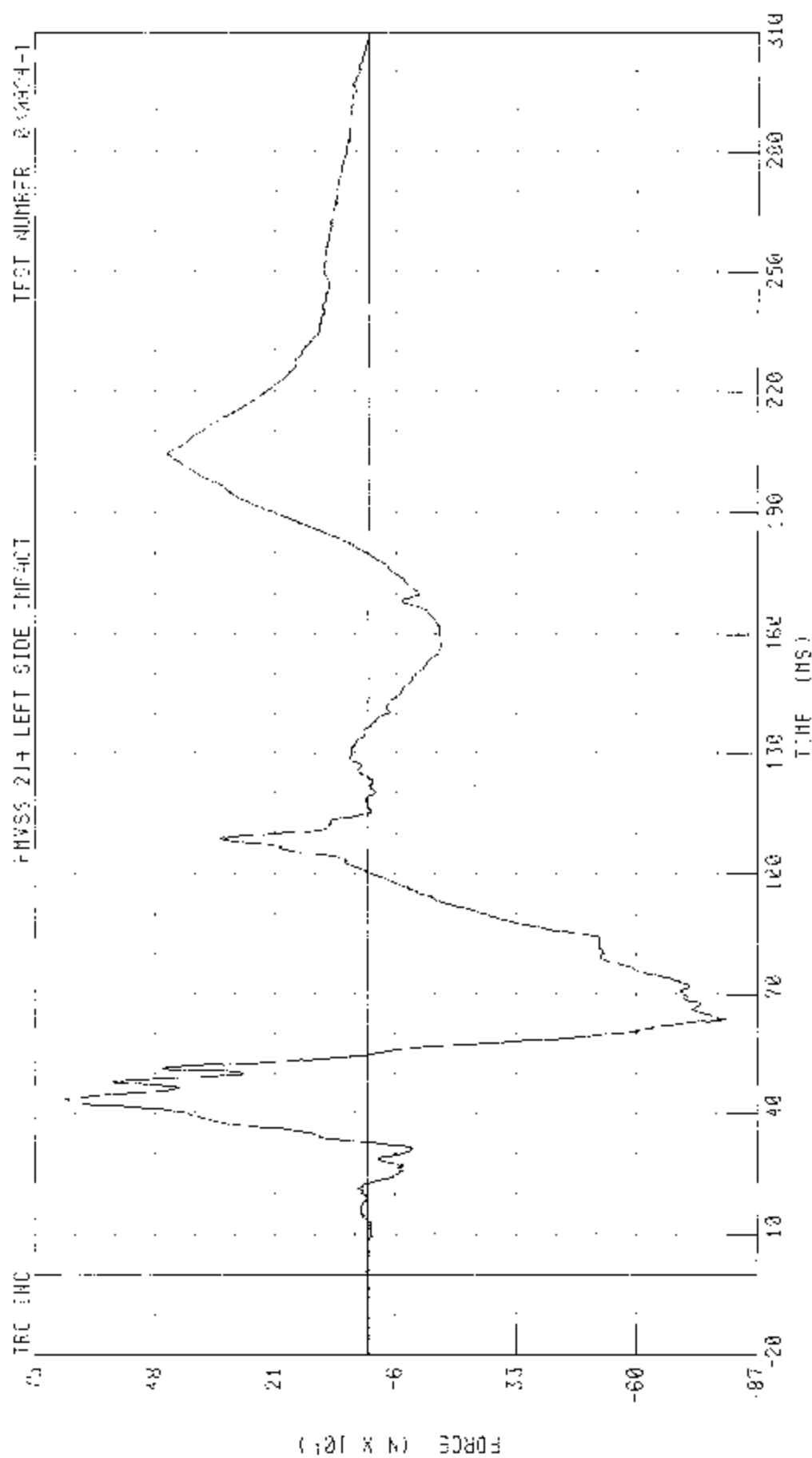
LEFT REAR PASSENGER NECK Y-AXIS SHEAR FORCE





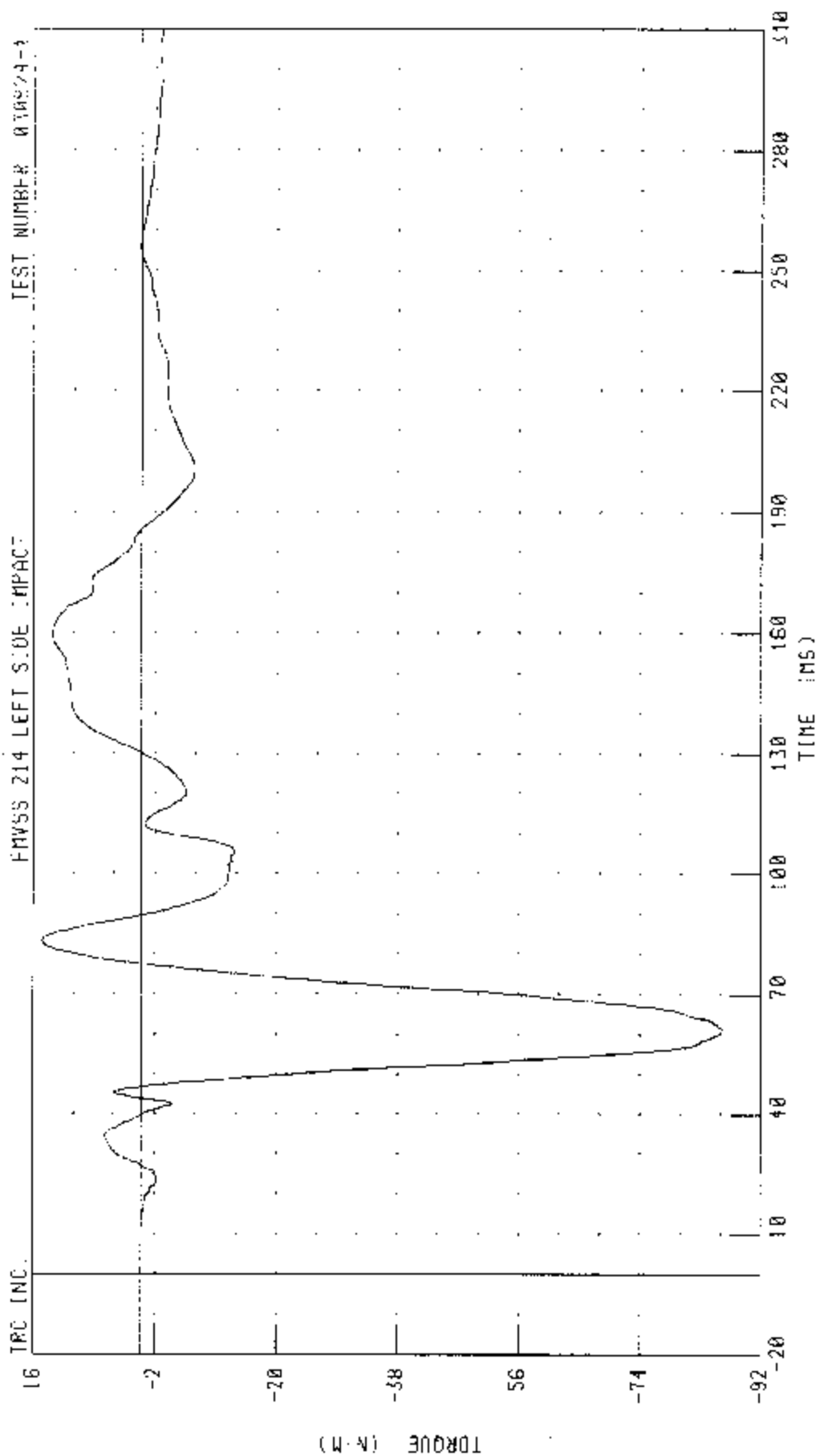
95-23 KH 9M 0694 : 116 YP<sup>2</sup> : 77045 : HERRING : 8+33AH + SHH14F : 94-211 : 401 : 469401 06 HAK KZ/S5  
22XV C781 43D JF 034 FALG 232

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55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER NECK MOMENT ABOUT X AXIS



CHANNEL: MEKX4 FILTER: CH CLASS: 600

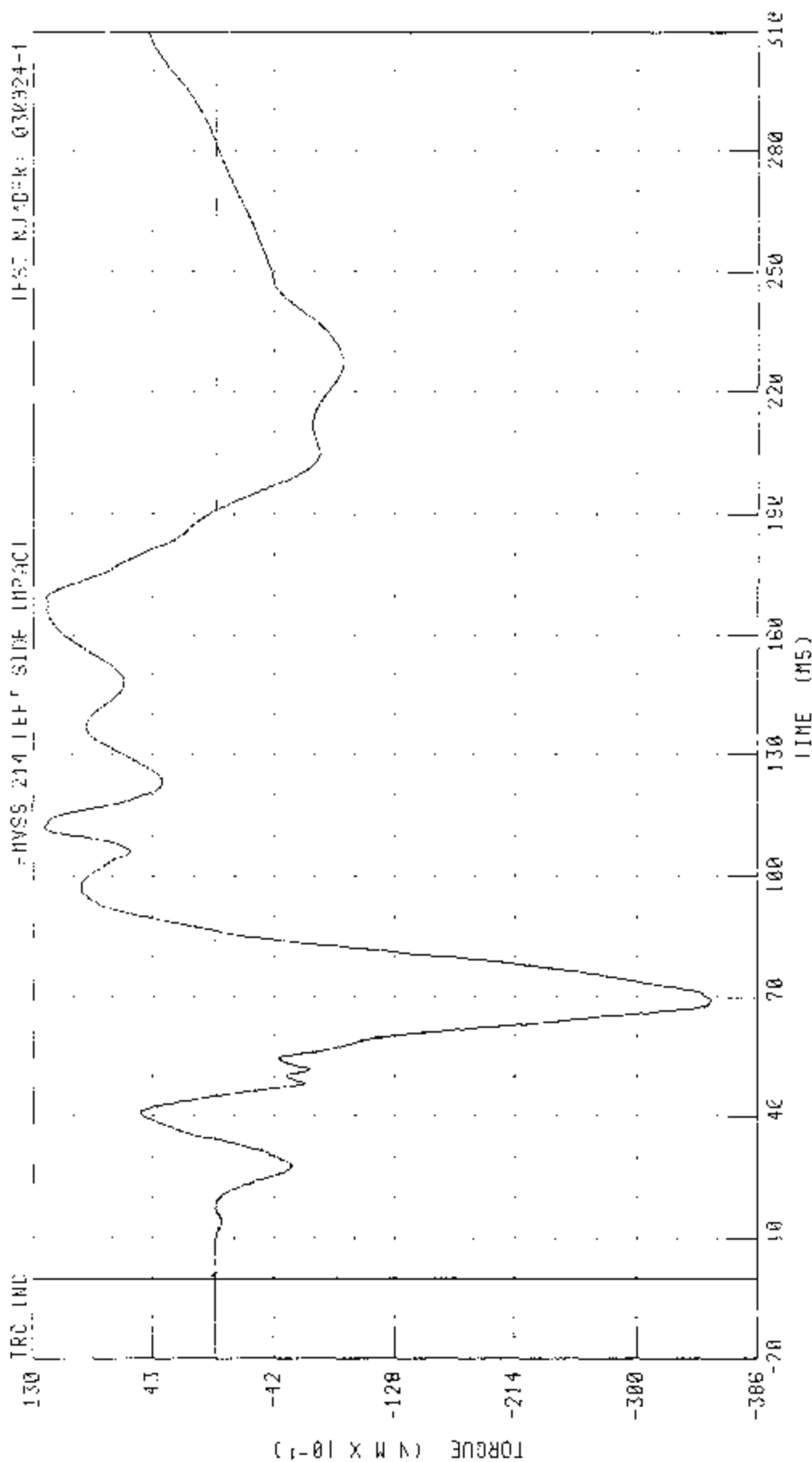
PEAK DATA 14 63 N M 83 28 MS, -86 26 N M 61 35 MS

55/26 KPH 00 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER NECK JUMPER ABOUT Y AXIS

IFSC NJADPR: 030924-1

FMVSS 214 LEFT SIDE IMPACT

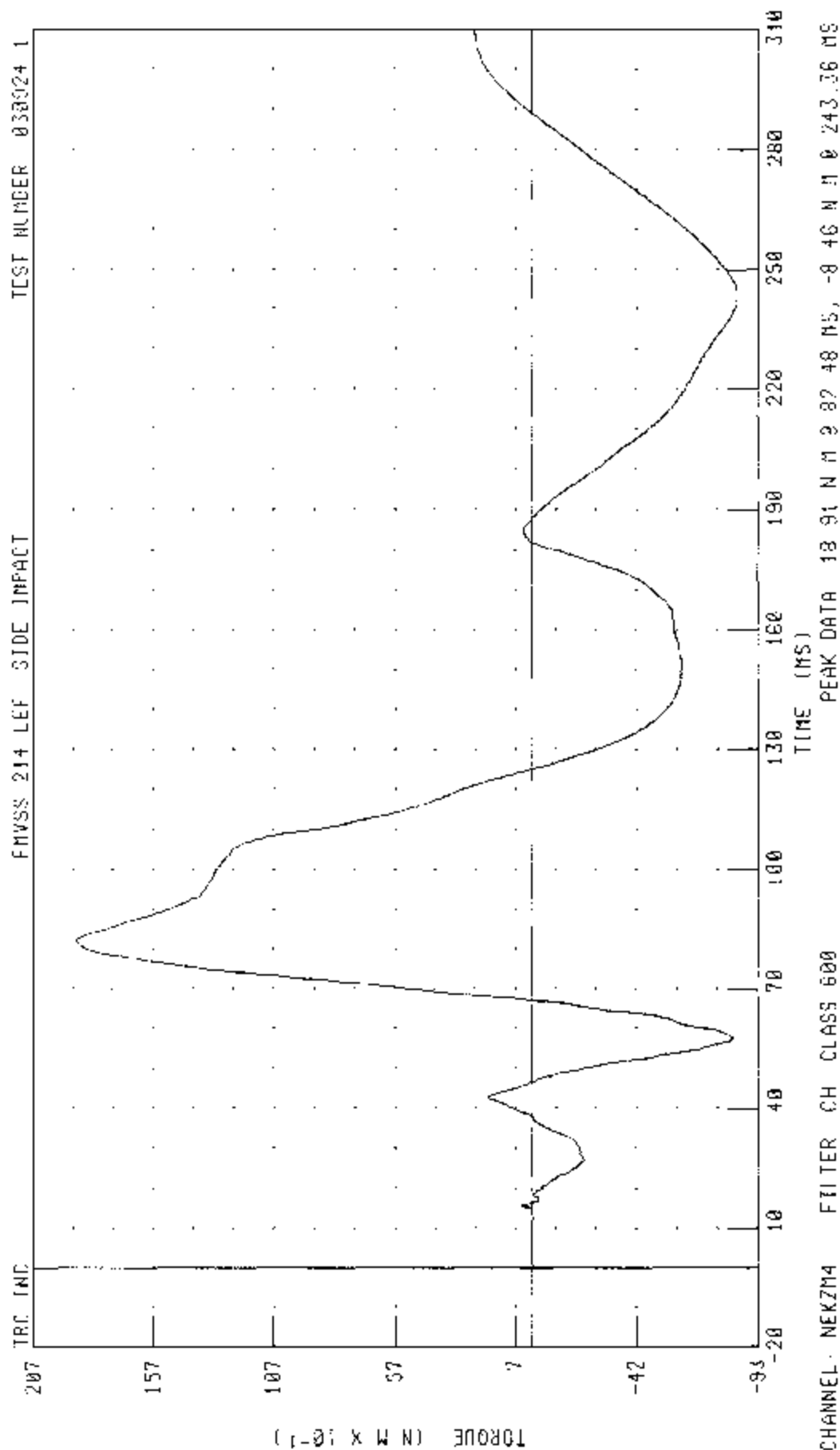


CHANNEL: NFXYN4, FILTER: CH CLASS 600

PEAK DATA: 12 17 N M 6 112 32 MS, -35 28 N M 6 69 20 75

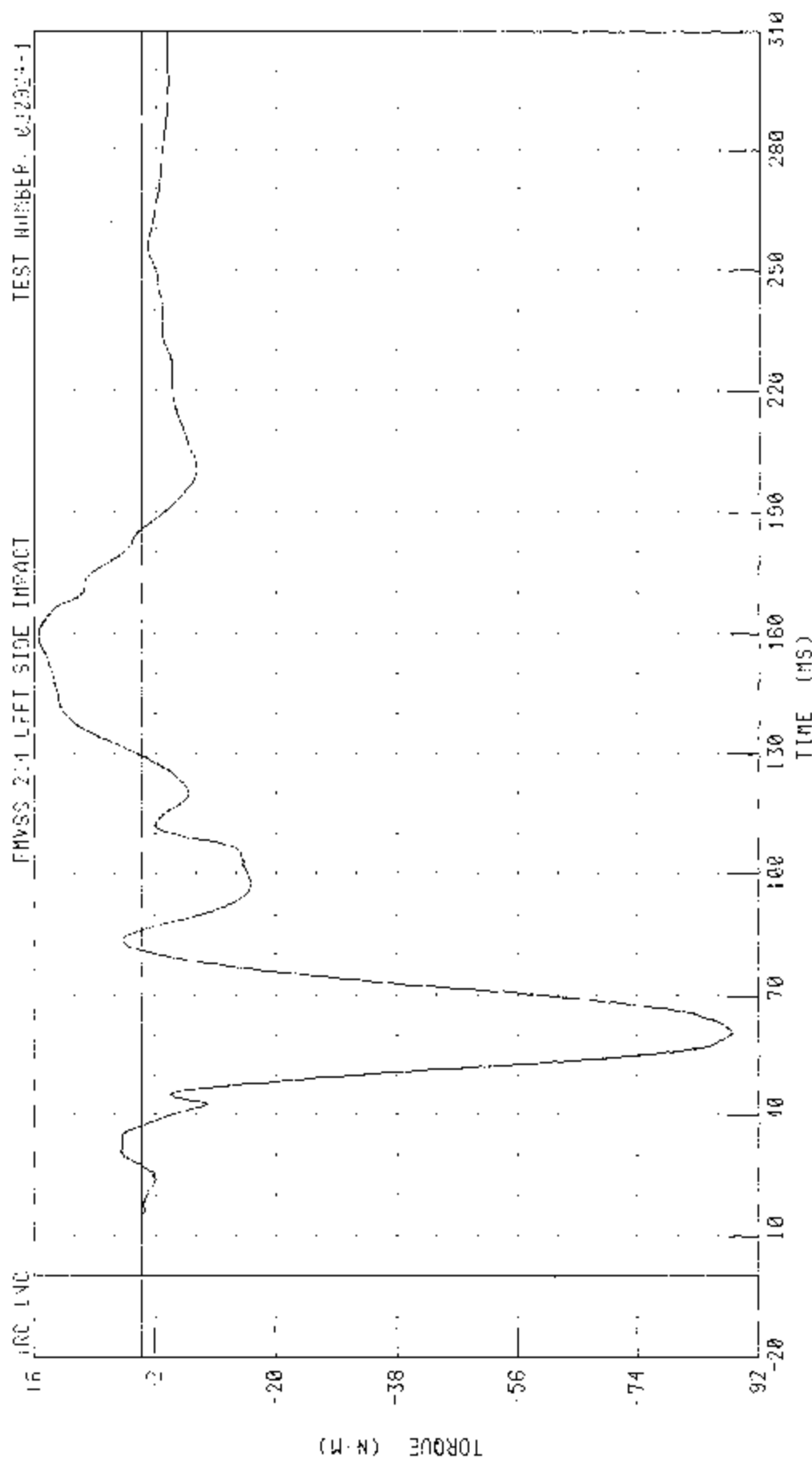
55/28 MPH 90 DEGREE SIDE IMPACT INVOLVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER NECK MOMENT ABOUT / OX[5]



50/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER NECK OCCIPITAL CONDYLE MOMENT ABOUT X AXIS



CHANNEL HK02M4 FILTER CH. CLASS 600

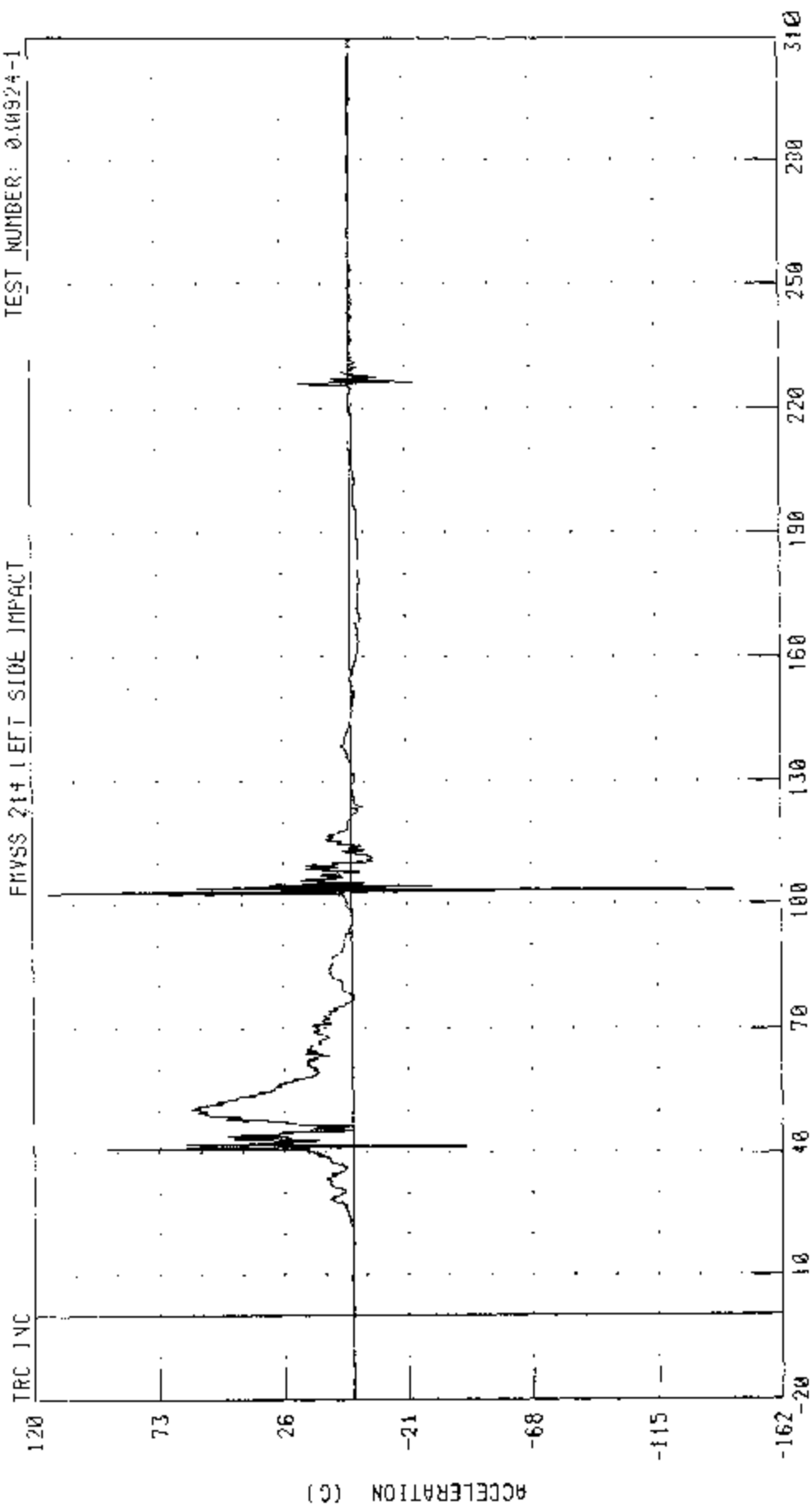
PEAK DATA 15 39 N M @ 159 20 MS. -88 10 N M @ 68 56 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER UPPER RIG Y AXIS ACCELERATION

TEST NUMBER: 010924-1

FMVSS 214 LEFT SIDE IMPACT



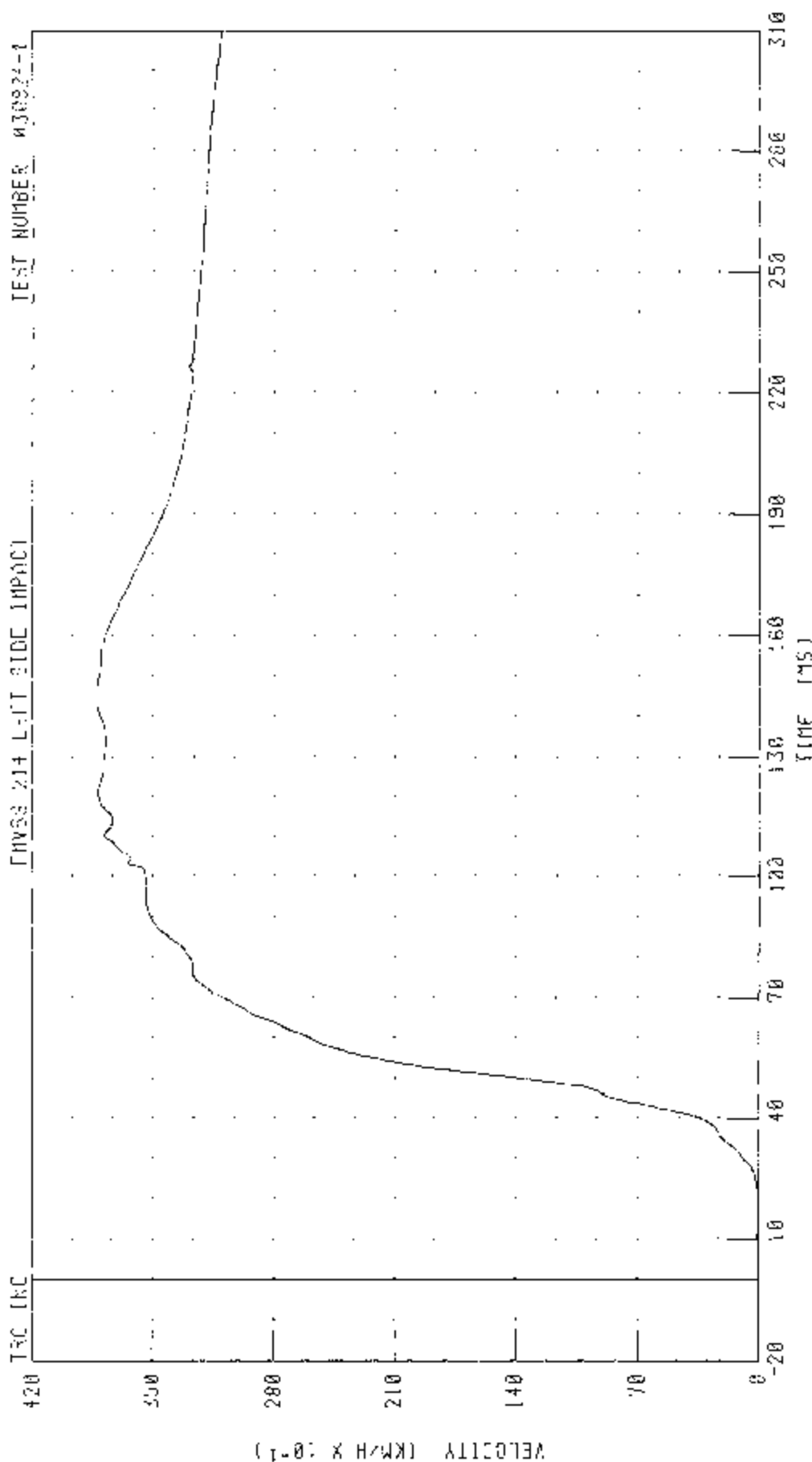
TIME (MS)

CHANNEL: LURYG4 FILTER: CH CLASS: 1000

PEAK DATA: 114.70 G @ 102.96 MS -144.15 G @ 183.52 MS

45/28 MPH 50 DEGREE SIGN IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE 3- 2004 LEXUS RX330

LEFT REAR PASSENGER UPPER RIB Y-AXIS VELOCITY

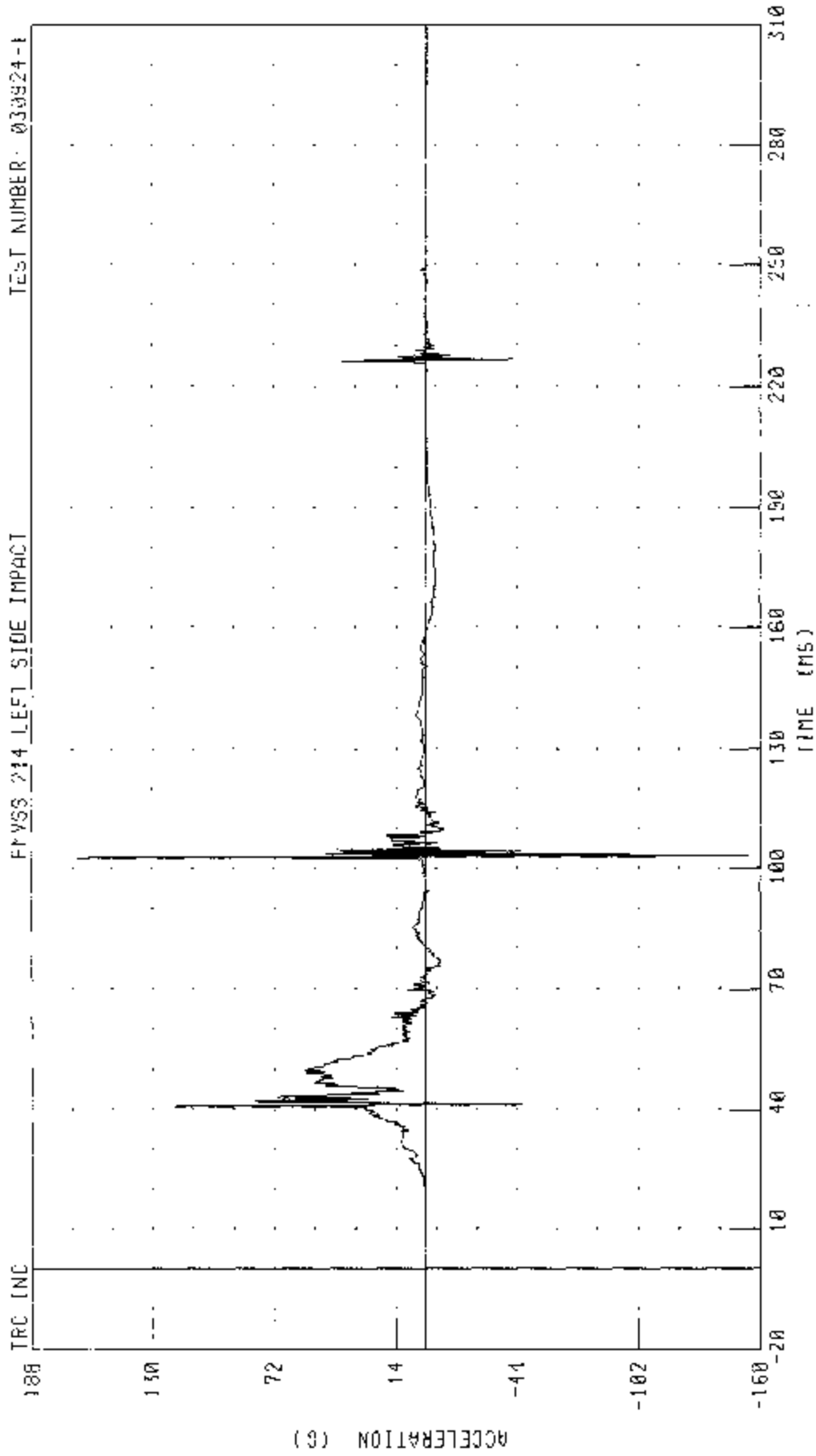


CHANNEL L0RYV4 FILTER: CH CLASS 180

PEAK DATA: 36 24 MPH @ 144 88 MS; 0 20 <1/4 @ 0.00 MS

55/28 KPH 90 DEGREE- STOP- IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER LOWER RIB Y-AXIS ACCELERATION



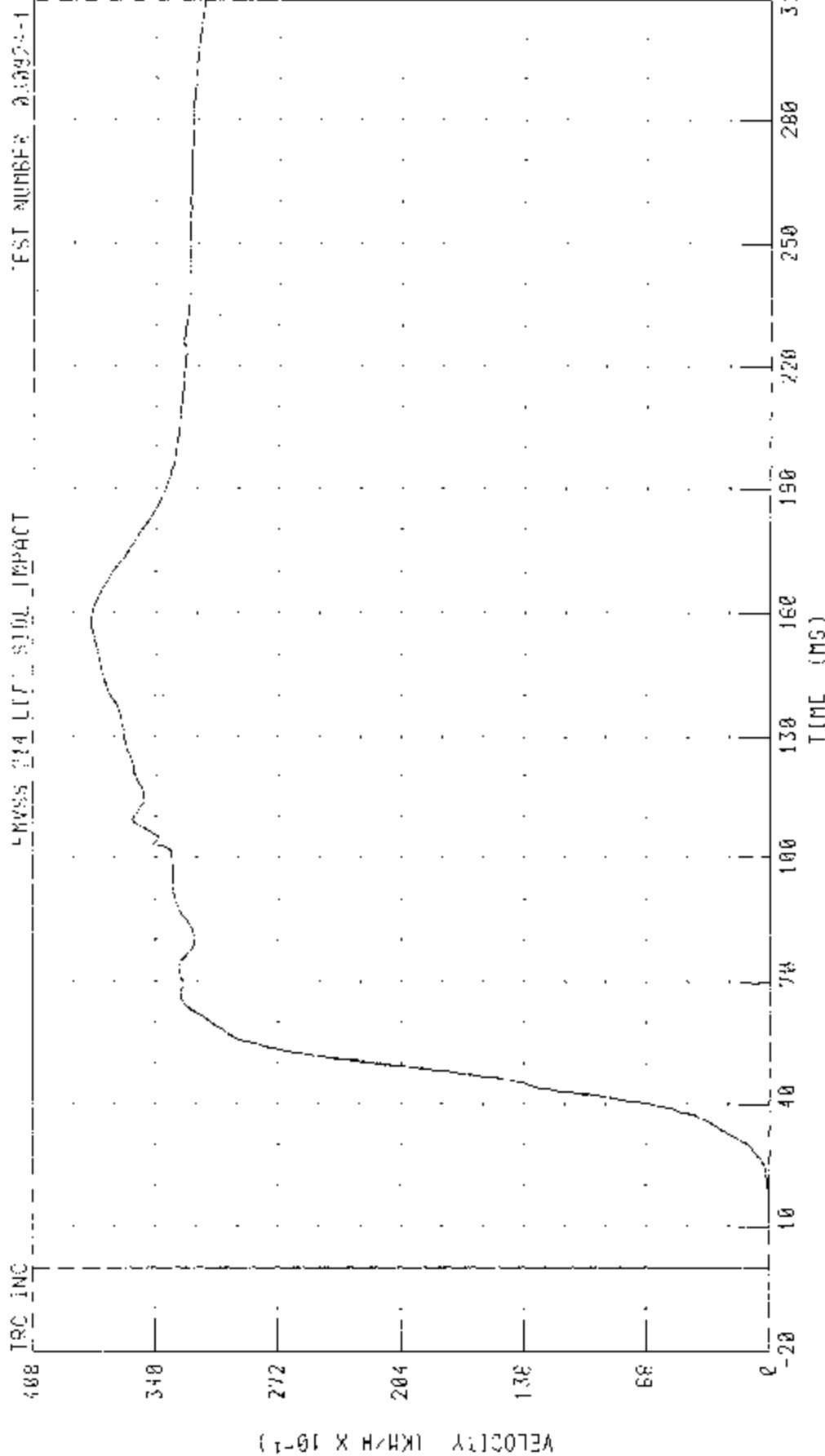
CHANNEL: 11RY04 FILTER: CH CLASS: 1000

PEAK DATA: 165.92 G @ 102.98 MS, -154.17 G @ 103.44 MS



55.28 KPH 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) WITH LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER LOWER R RUS Y-AXIS VELOCITY



PEAK DATA 37.54 KM/H @ 158.16 MS, 0.00 KM/H @ 0.00 MS

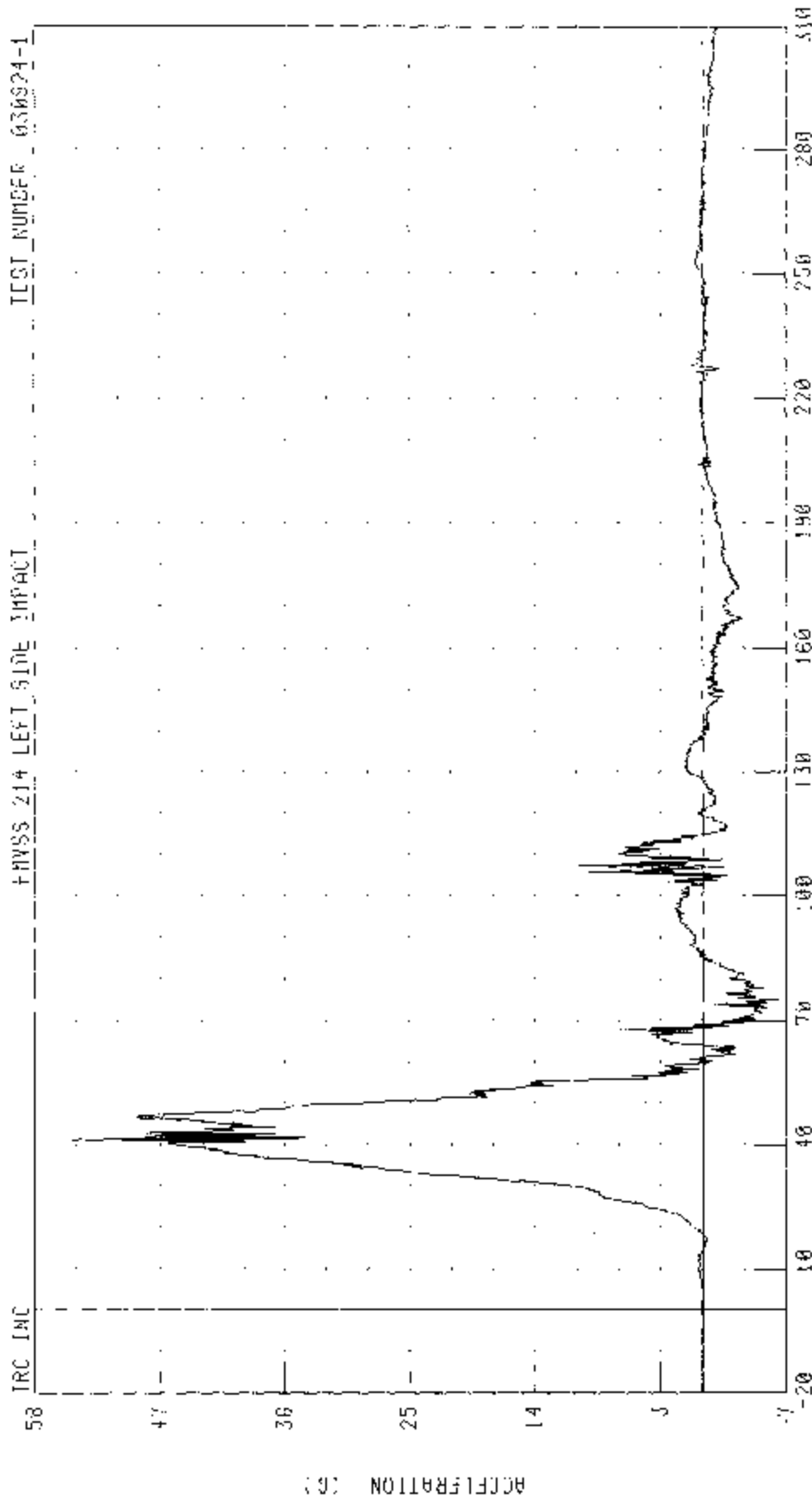
CHANNEL LLRVV4 FILTER CH CLASS 180

55/28 MPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARREL INTO LEFT SIDE OF 2004 LEXUS V433P

LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION

TEST NUMBER 030924-1

FRVSS 214 LEFT SIDE IMPACT



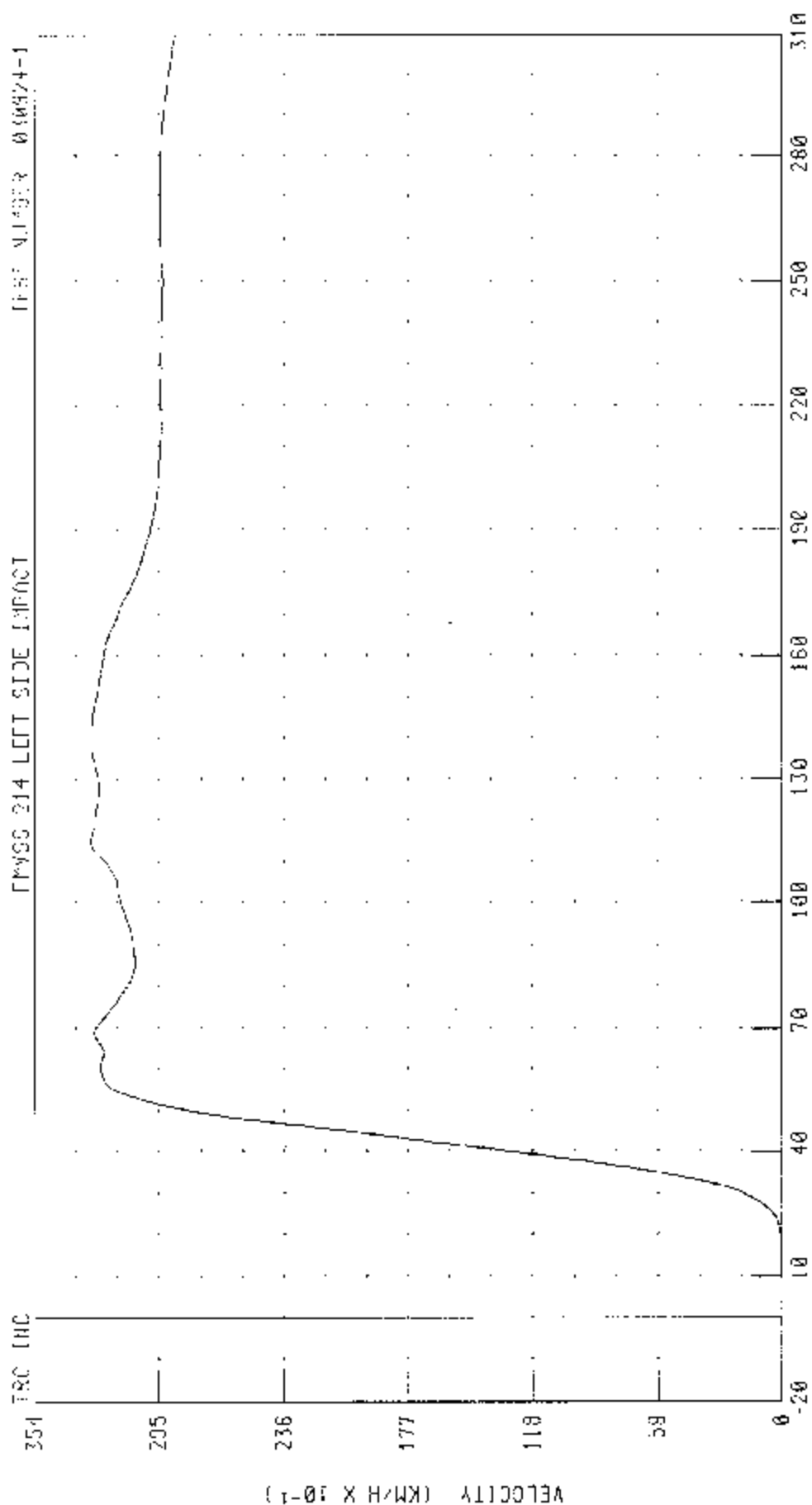
CHANNEL T12YC4 FILTER CH. CLASS 1000

PEAK DATA 35 35 0 0 41 14 MS, -6.63 G @ 75 28 15

55/23 KPH 90 DEGREE SIDE IMPACT (MOVING, INFORMANT BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER LOWER SPINE Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT TEST NUMBER 000924-1



TIME (MS)

CHANNEL T12YV4 FILTER CH CLASS 180

PEAK DATA 32 71 KM/H @ 114 88 MS; 0 00 KM/H @ 0.00 MS

55/28 KPI- 50 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

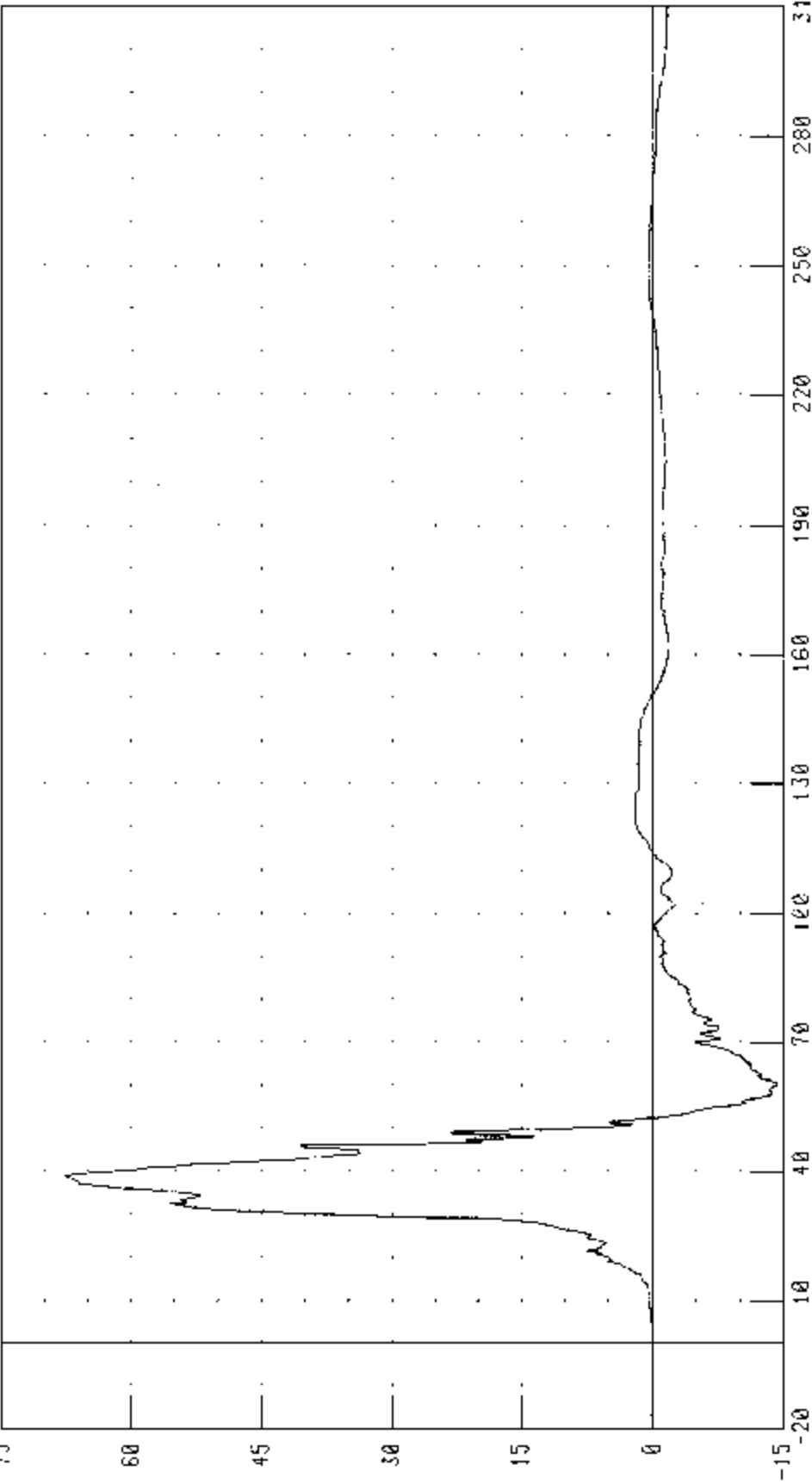
LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION

TEST NUMBER 030924-1

FMVSS 214 LEFT SIDE IMPACT

TRC INC

75



TIME (MS)

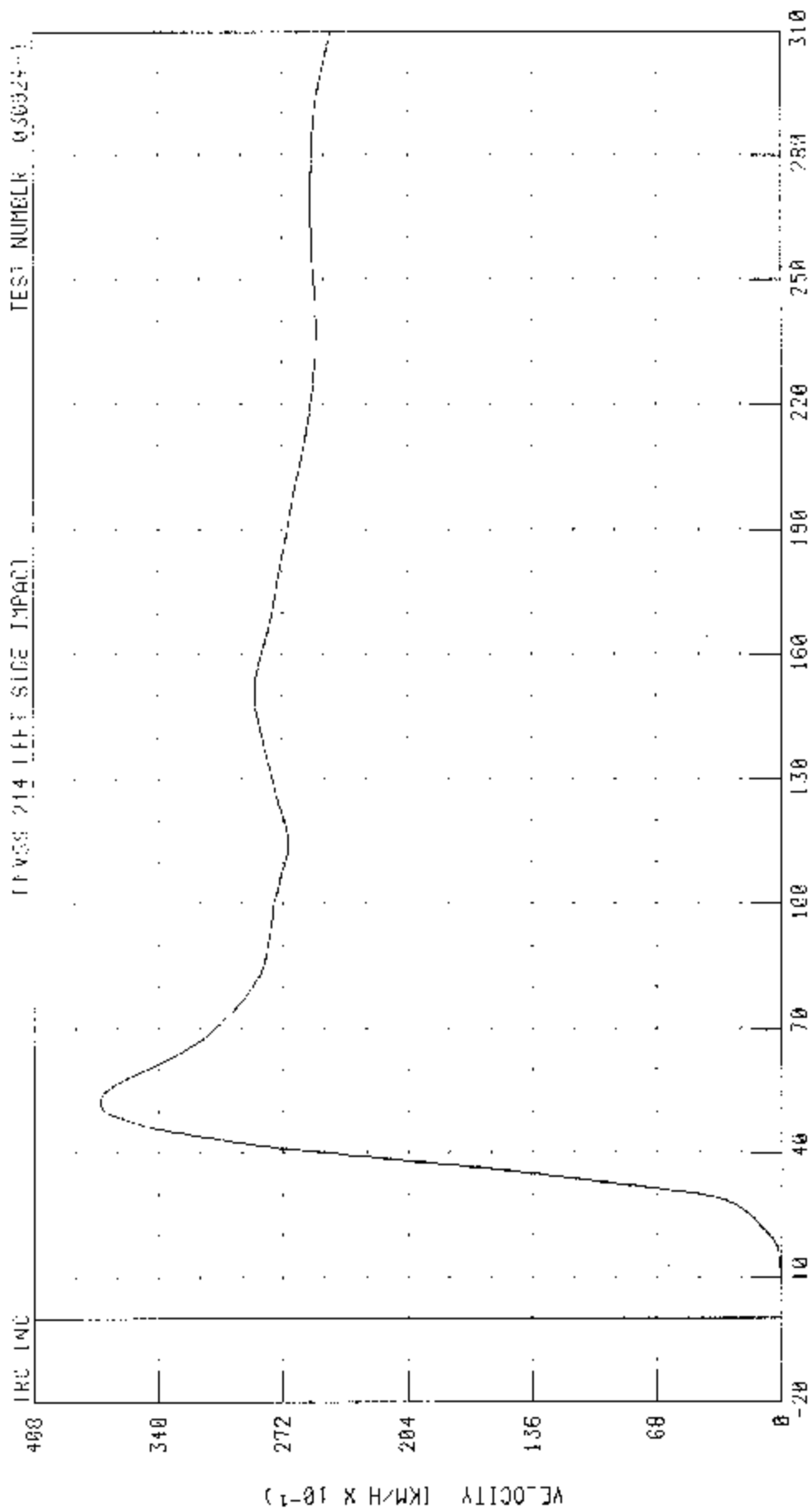
CHANNEL PEVYG4 FILTER CH. CLASS 1000

PEAK DATA 67 64 0 50 96 MS, 14 38 0 60 50 MS

55/20 MPH 90 DEGREE SIDE IMPACT: MOVING DEFORMABLE BARRIER: INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER PELVIS Y-AXIS VELOCITY

TEST NUMER 030924-1



TIME (MS)

CHANNEL PELVYV4 FILTER CH CLASS 100

PEAK DATA 37 21 km/h @ 52.40 ms, 0.00 km/h @ 0.00 ms

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000 - Redundant

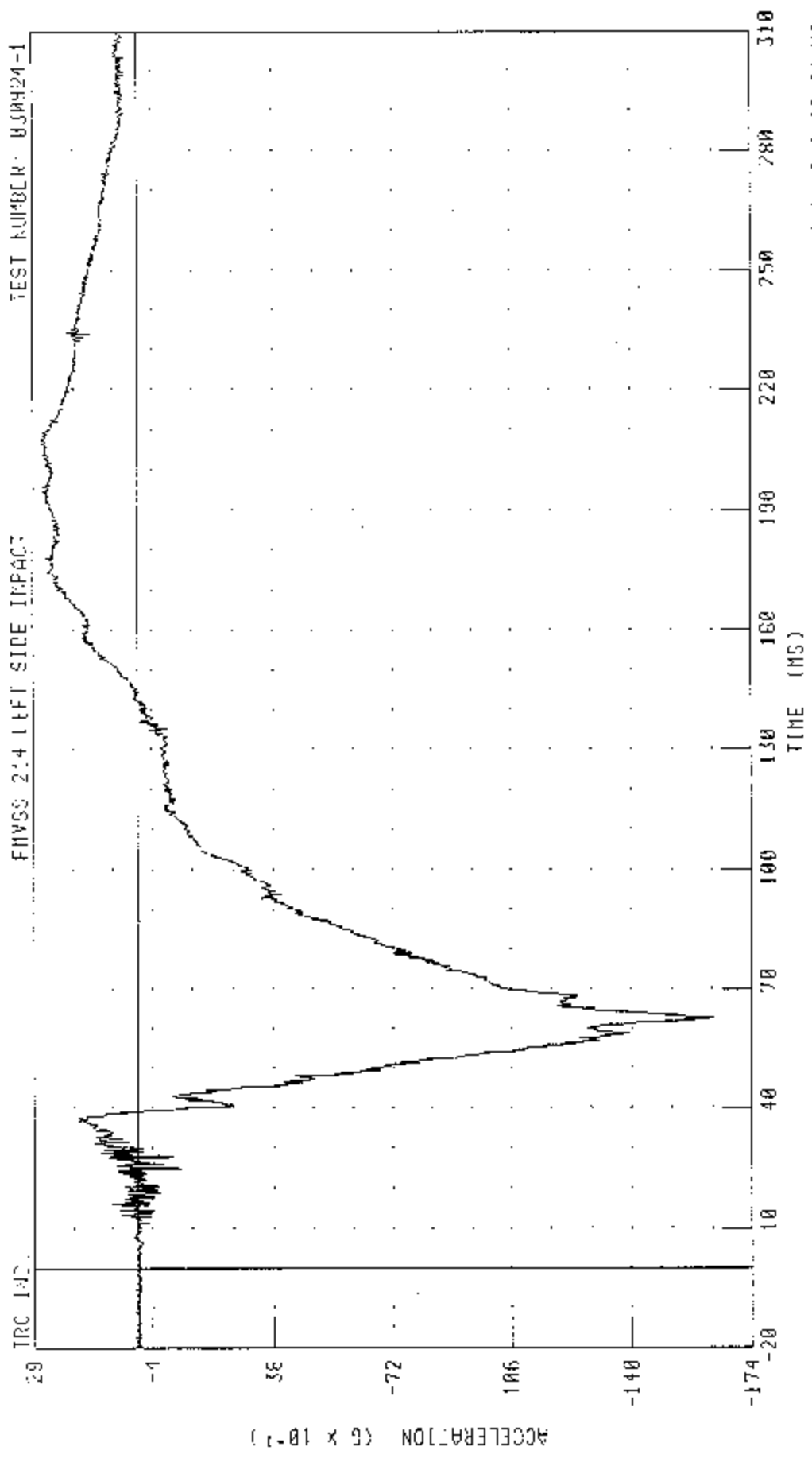
Integration Data - Filter Class 180 - Redundant

55.78 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX 450

DRIVER FOOT X-AXIS RUDDANT ACCELERATION

PHYS 214 LEFT SIDE IMPACT

TEST NUMBER: BSM924-1



CHANNEL: IIC0XR1 FILTER: CH CLASS: 1000

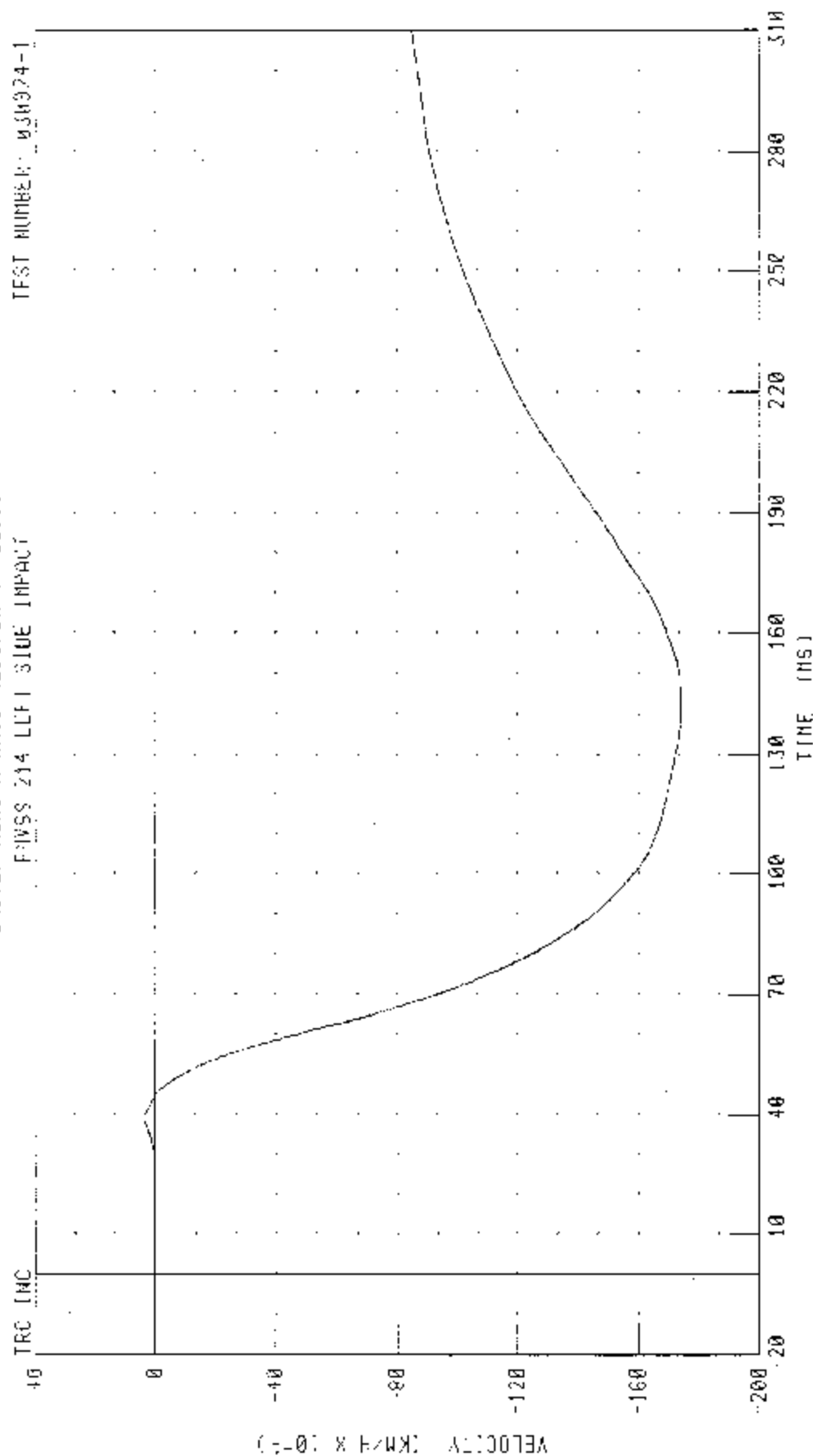
PEAK DATA: 2 76 C @ 206.56 MS, -16.27 G @ 62.64 MS

55-20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2000 LEXUS RX330

DRIVER HEAD X AXIS REDUNDANT VELOCITY

FWSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030924-1



CHANNEL HEDXV1 FILTER CH CLASS 180

PEAK DATA: 0 36 KM/H @ 59.12 MS, 17 46 KM/H @ 142.52 MS

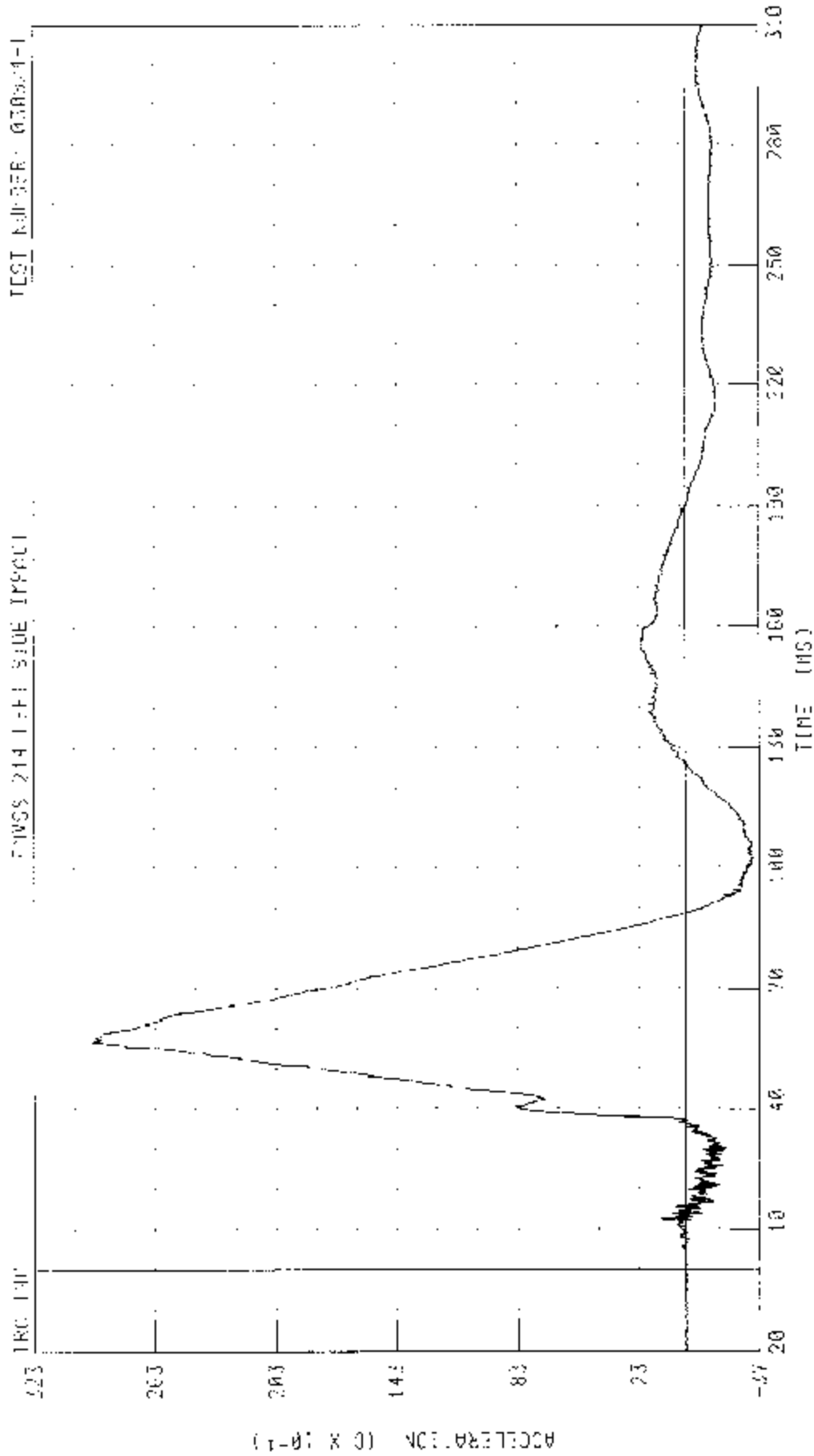


55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2034 LEXUS RX330

DRIVER HEAD Y AXIS REDUCENT ACCELERATION

TEST NUMBER: 030924-1

FWGS 214 LEFT SIDE IMPACT



CHANNEL HEGYR1 FILTER CH GAGE 1000

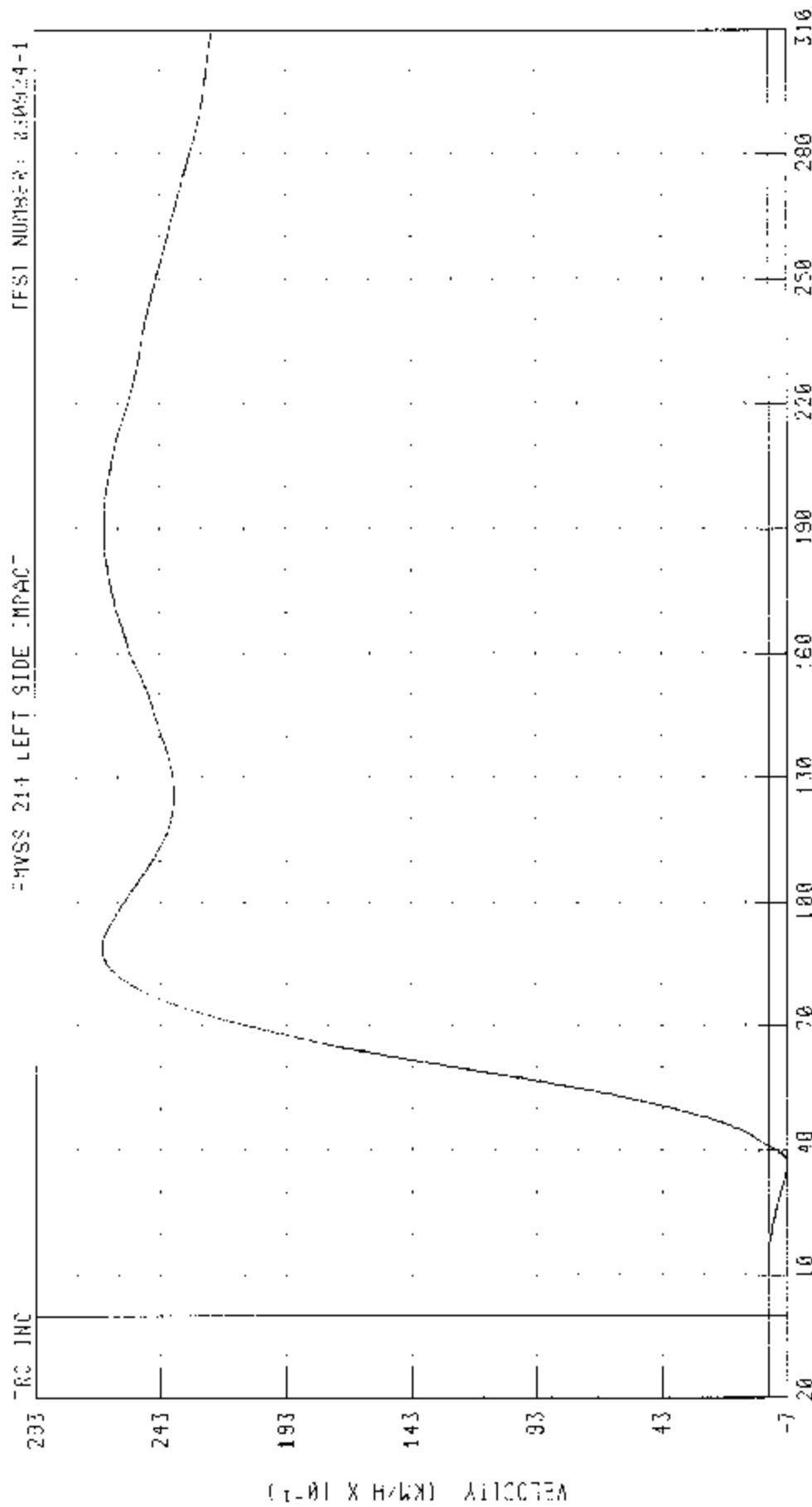
PEAK DATA: 20 43 0 0 57 64 15; -3 43 0 0 102 10 10

55/25 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARrier) INTO LEFT SIDE OF 2004 TEXUS RX350

DRIVER HEAD Y-AXIS REDUNDANT VELOCITY

TEST NUMBER: 300924-1

CHVSS 214 LEFT SIDE IMPACT



TIME (MS)

CHANNEL HEDVYJ FILTER: CH CLASS 100

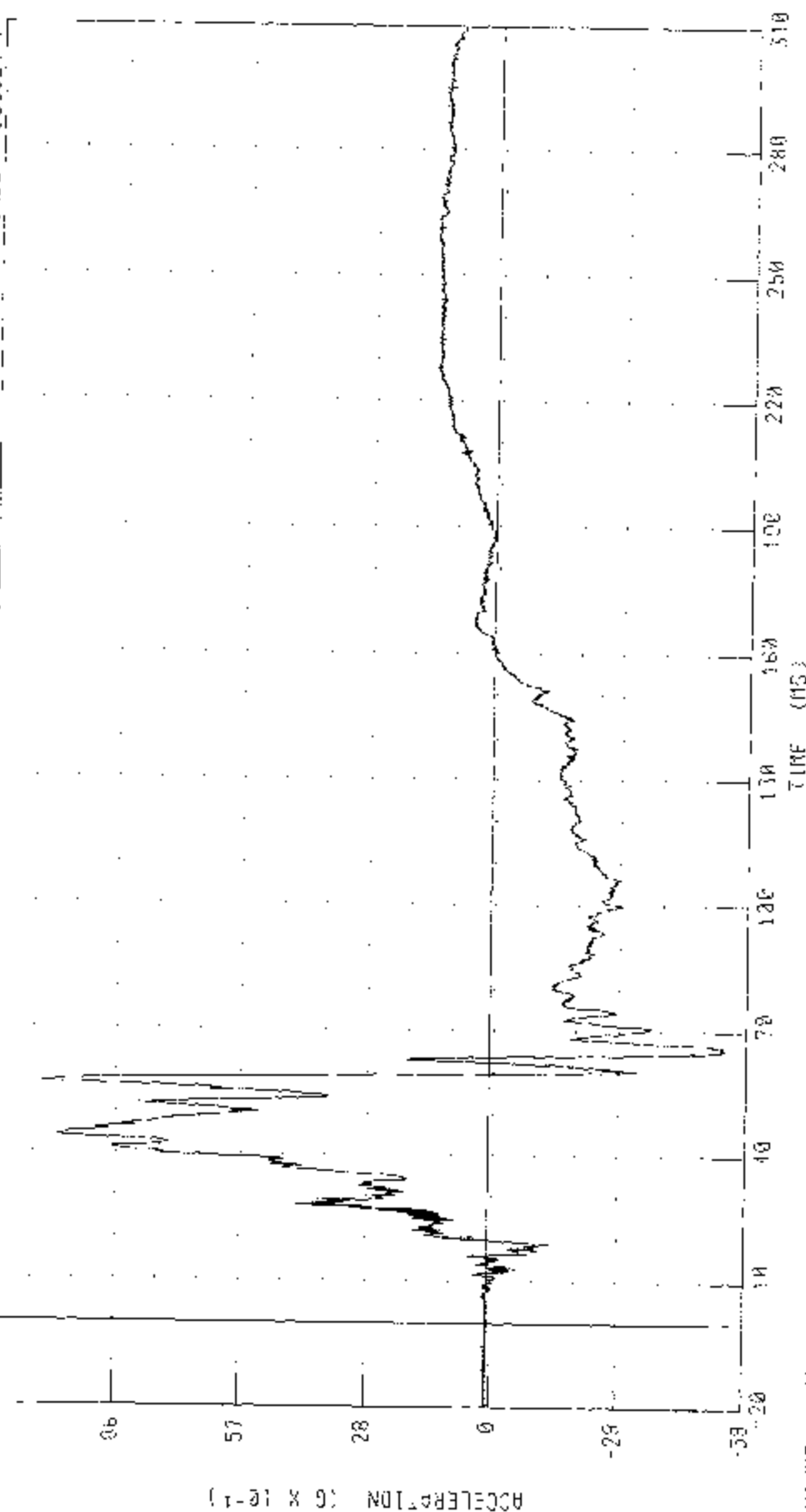
PEAK DATA 26 82 KM/H @ 88 88 MS; -0 67 KM/H @ 26 96 MS

55/73 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 FORD FOCUS RX350  
 DRIVER HEAD 7-HZ-16 REONDUENT ACCELERATION

115 720 KHZ

FMVS 214 LEFT SIDE IMPACT

TESI 90M8EX 030924-1



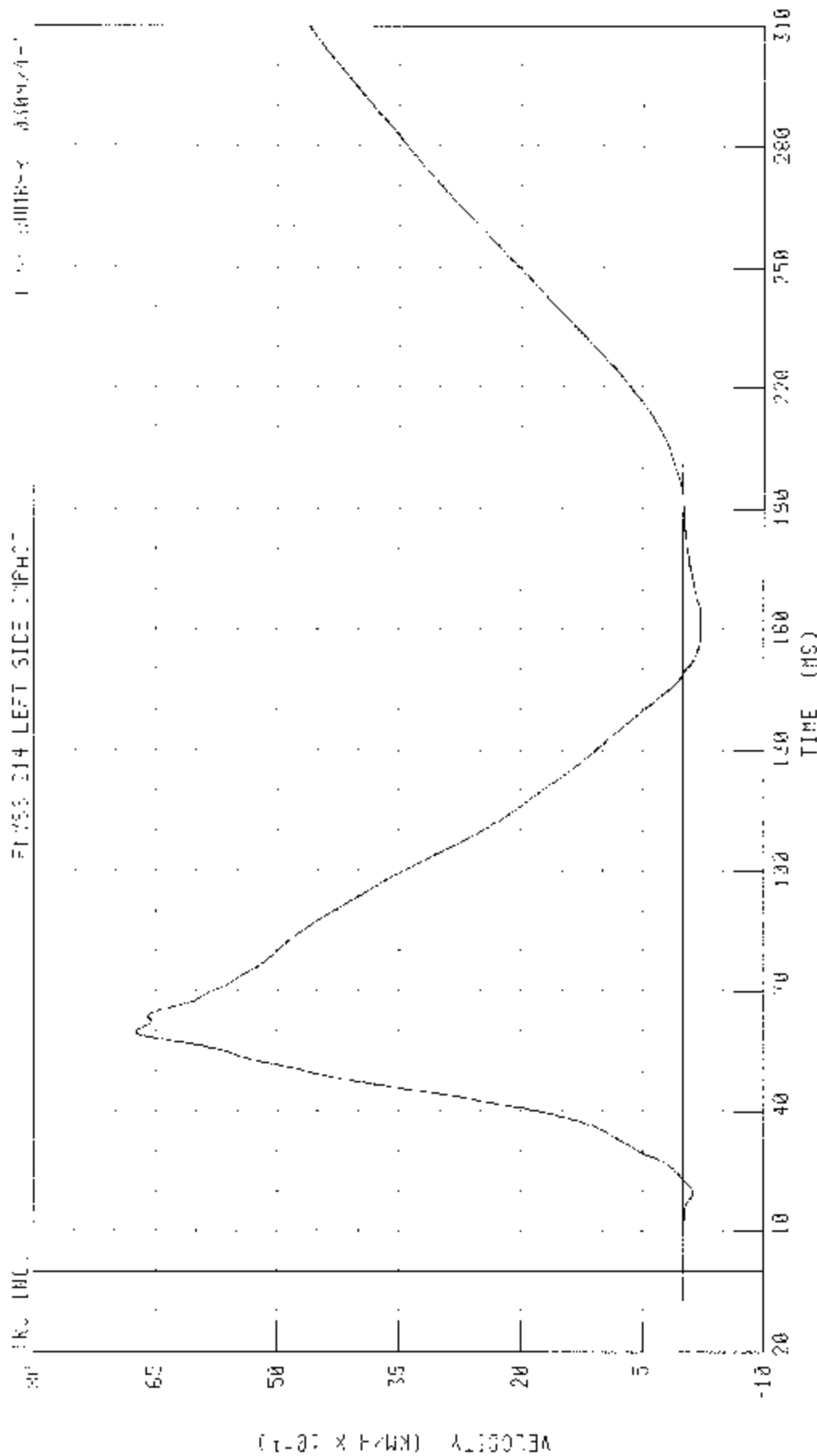
CHANNEL 1112782 FILTER CH CLASS 1800

PEAK DATA 10 42 0 57 44 MS, 15 45 0 65 76 MS

50-28 KPH AT IMPACT SITE IMPACT DURING IMPERMEABLE BARRIER INTO LEFT SIDE OF 2004 LEXUS RX330

DRIVER SEED 2 AXIS RECORDING VELOCITY

PLATE 214 LEFT SIDE IMPACT

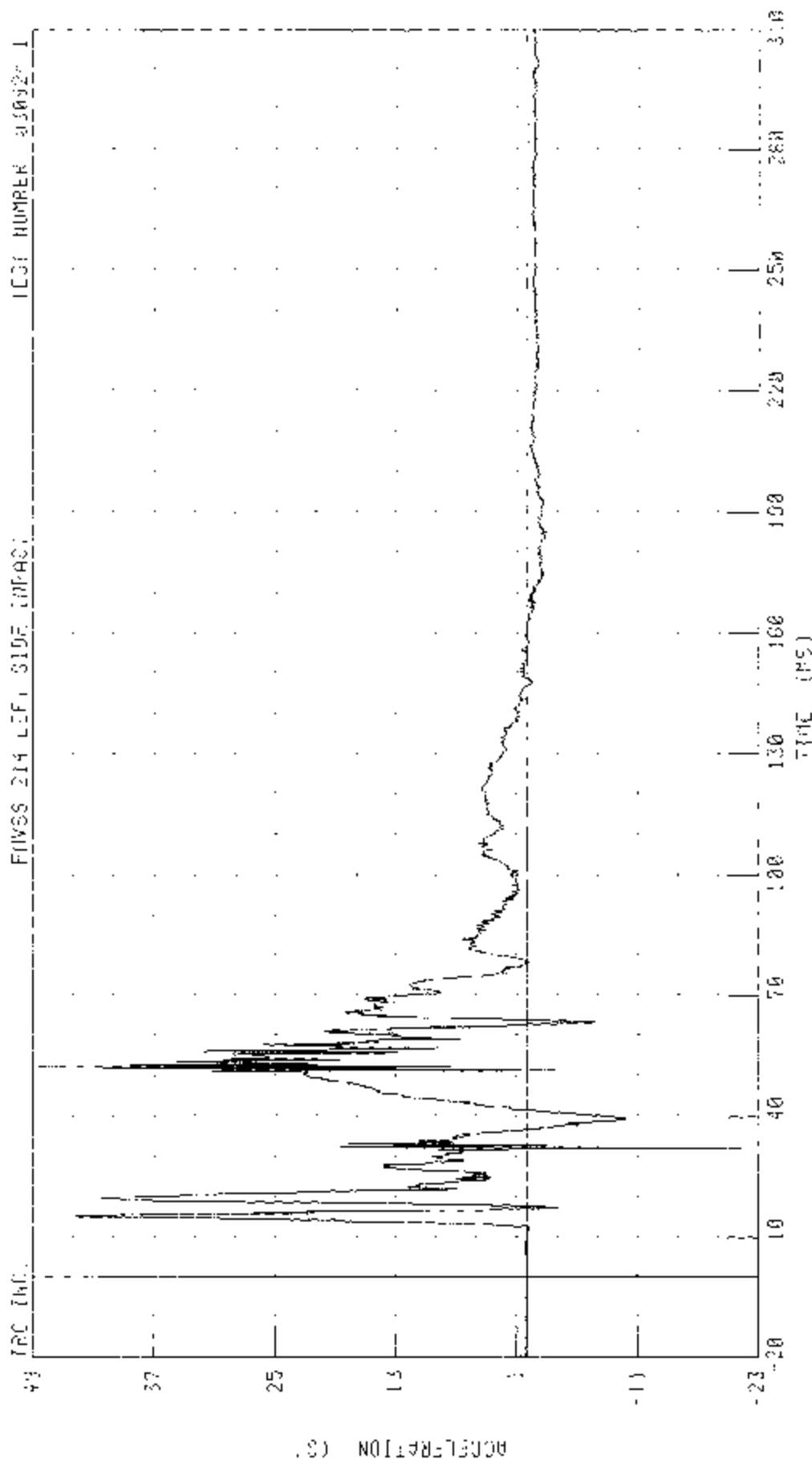


CHANNEL HCDZV FILTER CH CASE 180

PEAK DATA 6.75 KM/H @ 59.60 MS 2.23 KPH @ 161.50 MS

55/28 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE FOREBODY) INTO IIR SID OF 2004 I-805 PM330

CRASH TEST NO. 910 6-AXIS GROUNDWATER ACCELERATION

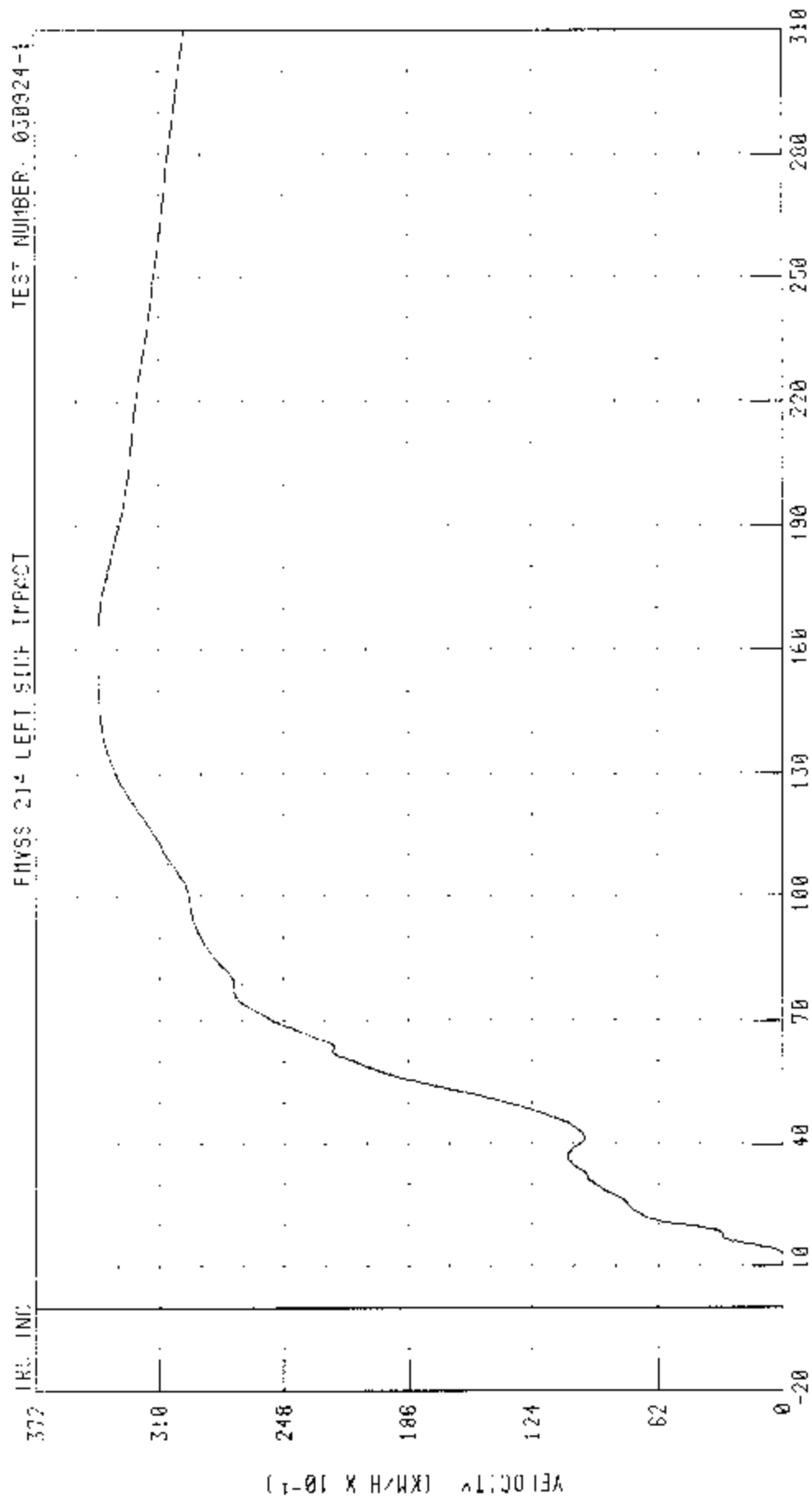


CHANNEL 1 (MYR1) FILTER CH CLASS 1000

PLAK DATA 48 54 6 8 12 14 MS. -21 54 6 8 12 14 MS

55/20 KPH 50 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

DRIVER UPPER R10 Y AXIS REDUNDANT VELOCITY

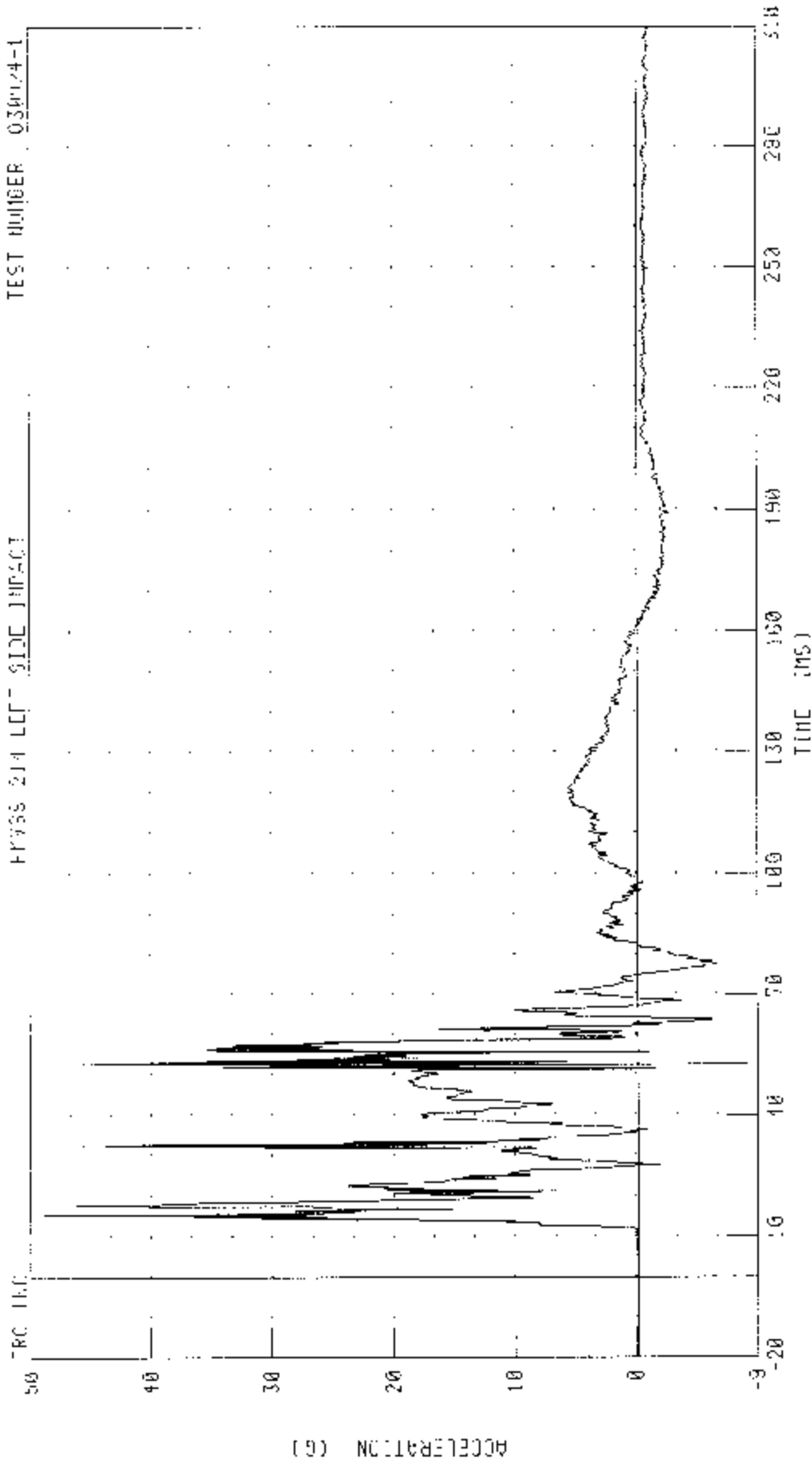


35/20 KPI 00 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) DATA LEFT SIDE OF 2004 LEXUS RX330

CRASH LOWER R.R. Y-AXIS REDUNDANT ACCELERATION

HYSS 214 LEFT SIDE IMPACT

TEST NUMBER 030924-1



CHANNEL LLRYR FILTER CH CLASS 1000

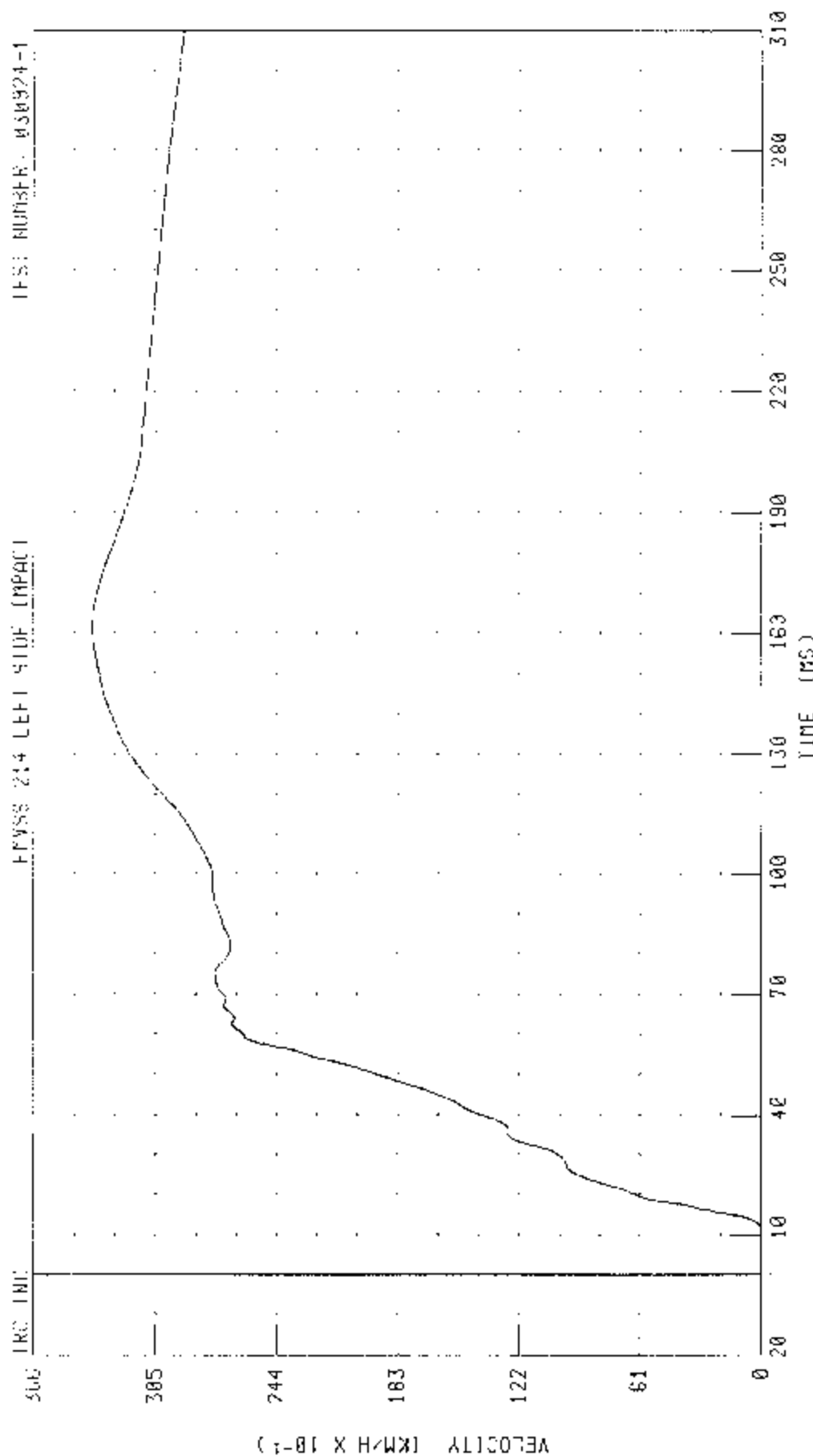
PEAK DATA 40 24 0 @ 52 72 MS. 0 94 0 @ 52 32 MS

55.28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

DRIVER LOWER RIB Y-AXIS REBOUND VELOCITY

TEST NUMBER: 030924-1

HYSS 214 LEFT SIDE IMPACT



CHANNEL LLRYVI FILTER CH CLASS 160

PEAK DATA 33.65 KM/H @ 161.66 MS, 0.00 KM/H @ 2.00 MS

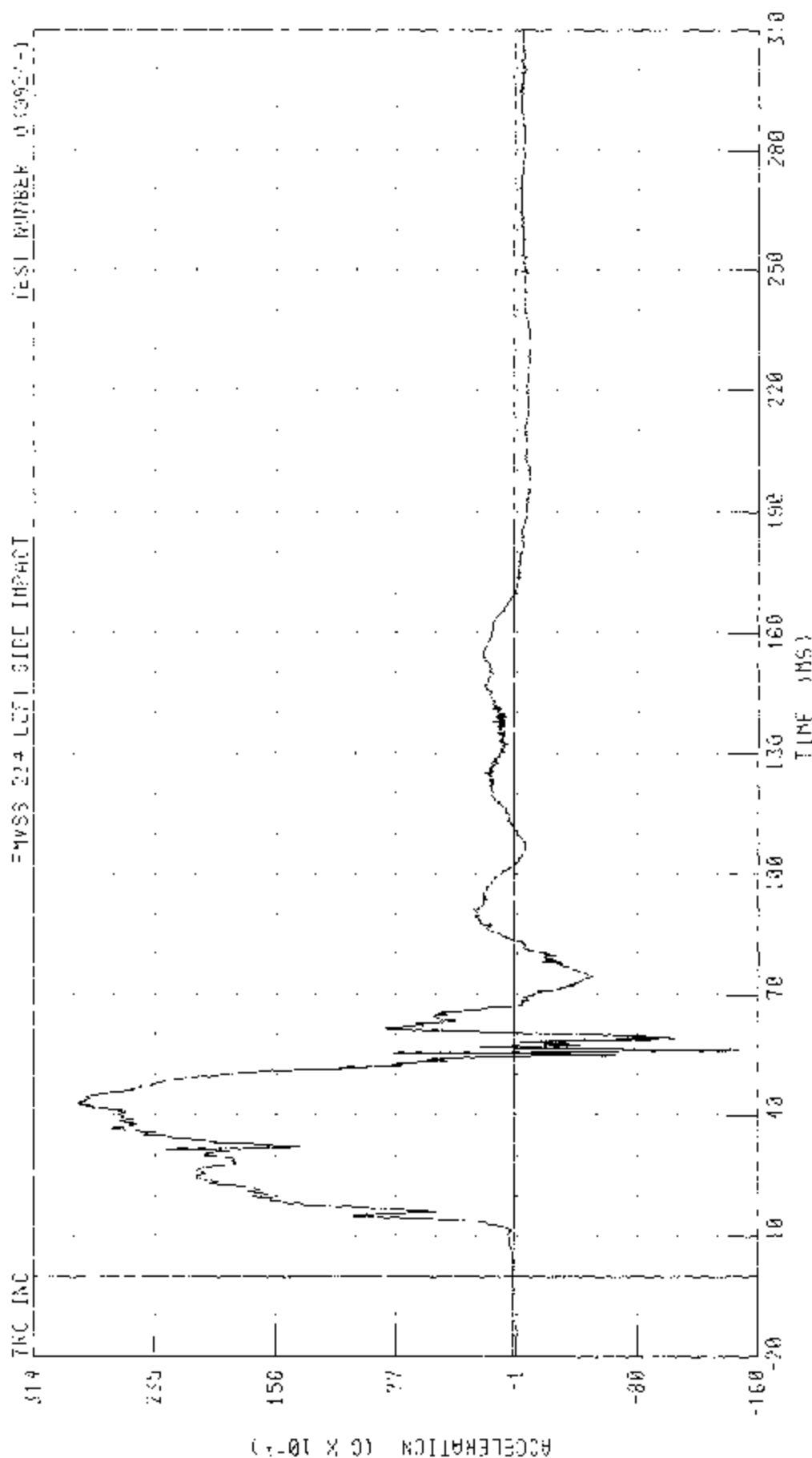


5512B 4MB 90 DEGREE SIDE IMPACT - MOVING PERFORMANCE BARRIER INTO LEFT SIDE OF 1004 EXHIB EX330

DRIVER LOWER SPINE Z-AXIS RESONANT ACCELERATION

FMVS 214 LEFT SIDE IMPACT

TEST NUMBER 00000001



CHANNEL - T12YR1 FILTER - CH CLASS 1000

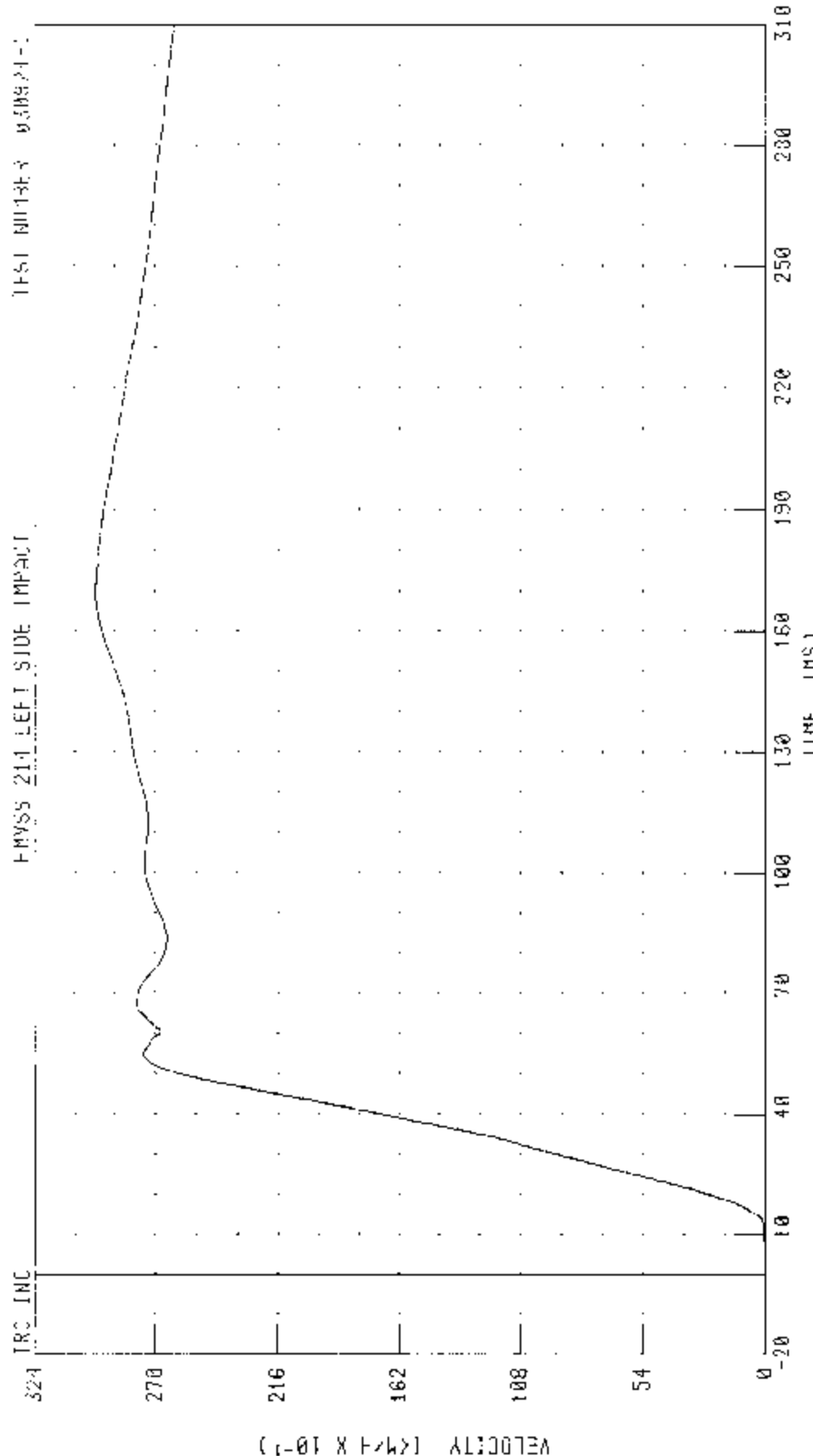
PEAK DATA 28.57 G @ 42.88 MS, -14.75 G @ 55.32 MS

55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

DRIVER LOWER SPINE Y-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030924-1

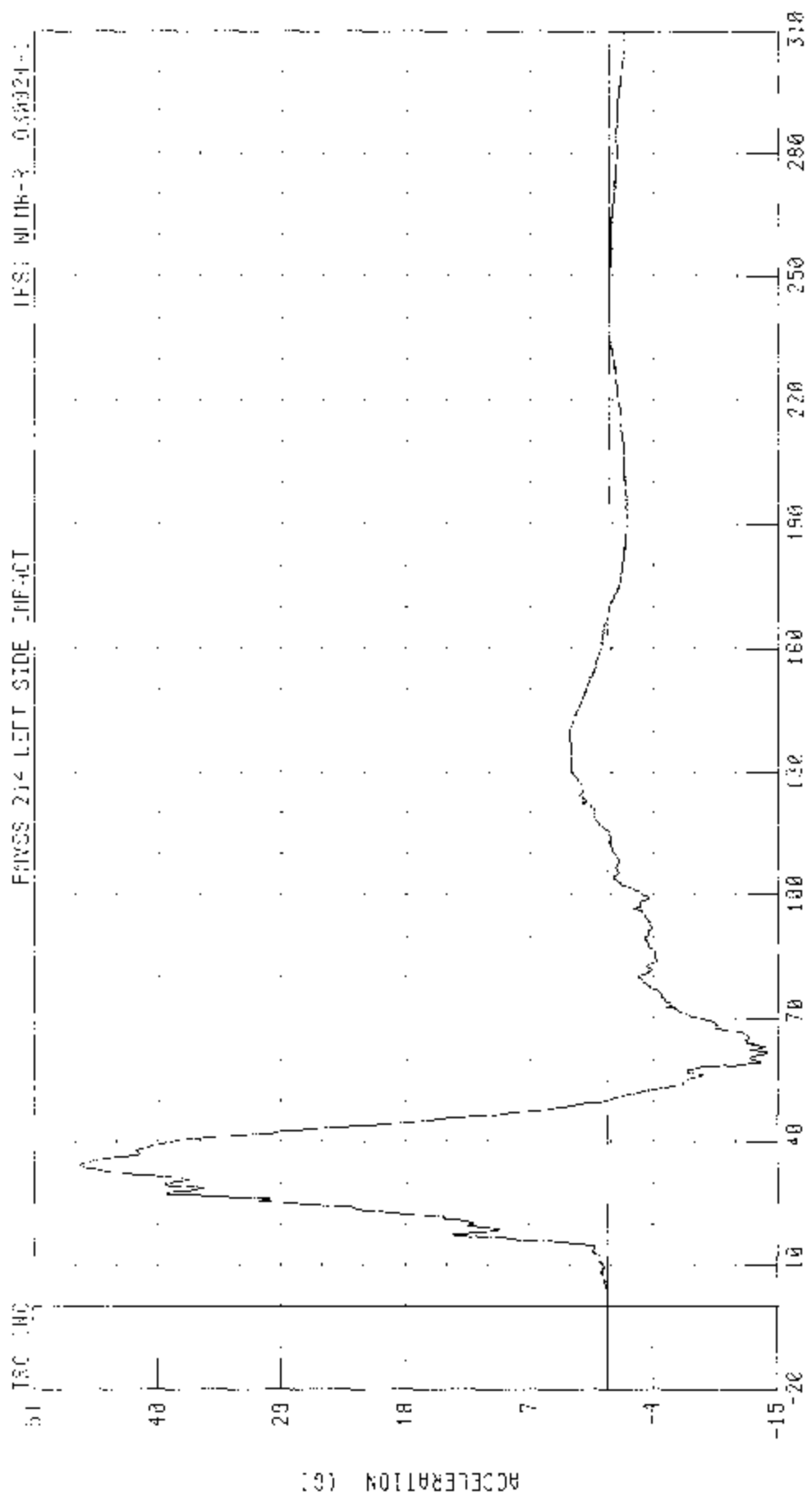


CHANNEL T12YVI FILTER CH CLASS 180

PEAK DATA 29.65 KPH @ 100 MS, 0.00 KPH @ 0.00 MS

05/28 KPS 50 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

DRIVER PELVIS 3-AXIS ACCIDENT ACCELERATION



IFS: NIMR-2 0.00924-1

CHANNEL PEYR FILTER CH CLASS 1000

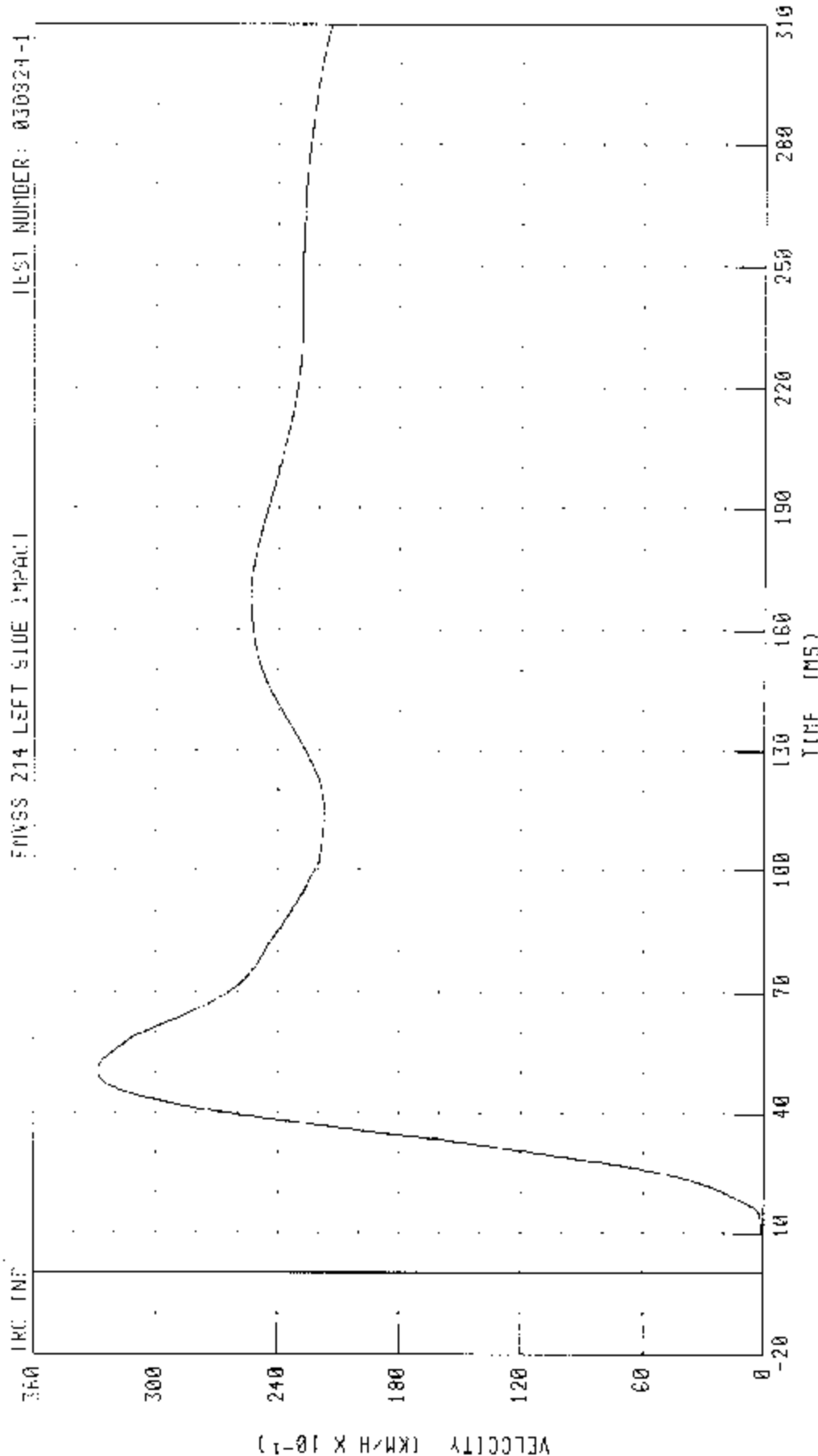
TIME (MS)

PEAK DATA 45.08 0.0 34.84 MS. -14.17 0.0 51.84 MS

55/25 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

DRIVER PELVIS Y-AXIS HORIZONTAL VELOCITY

FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 030924-1

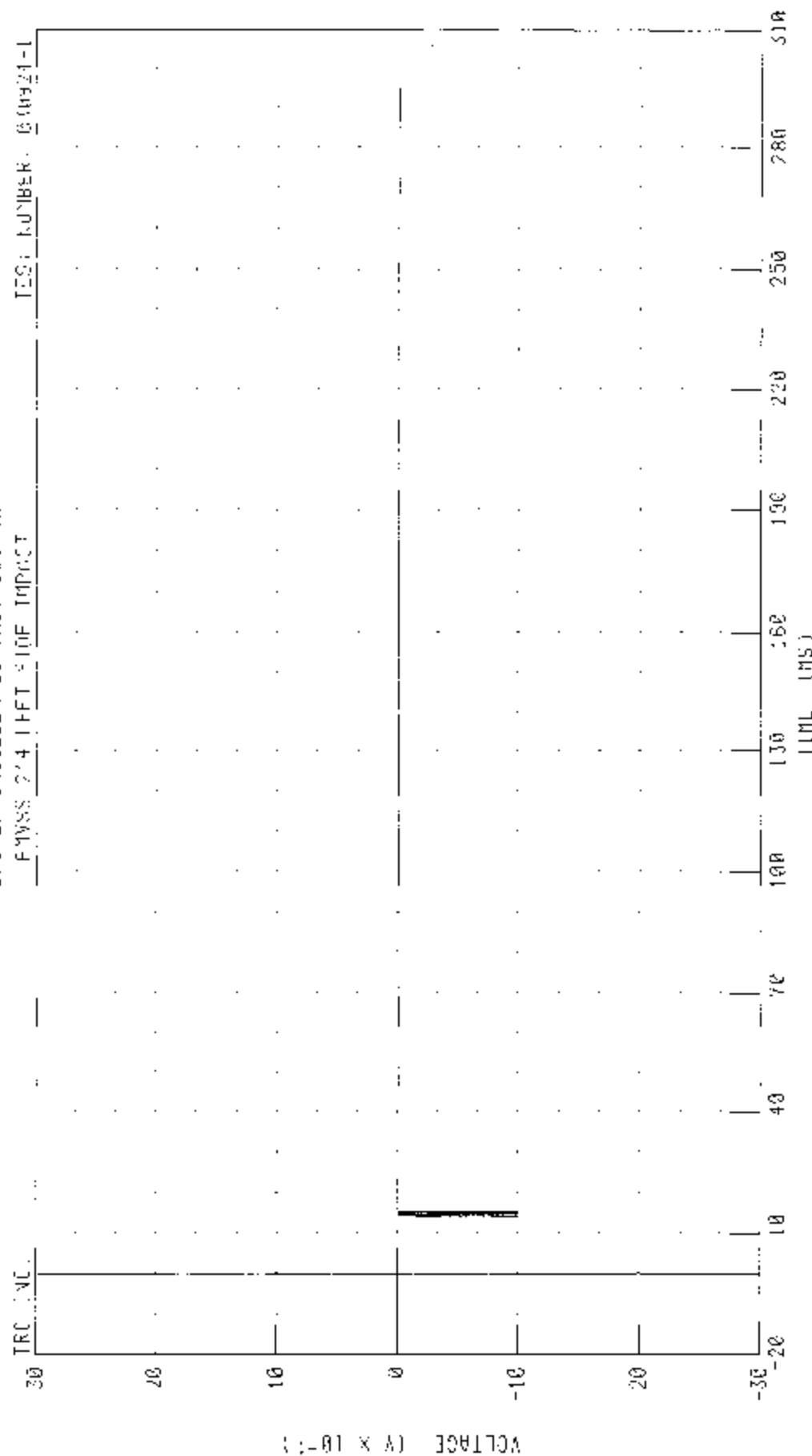


CHANNEL PEVYV1 FILTER CH CLASS 100

PEAK DATA: 32.83 KM/H @ 50.52 MS, 0.20 KM/H @ 0.00 MS

55 MPH 3M OFFSHOULDER SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2004 FORD EXUS EX-550

DRIVER SHOULDER CONTACT SWITCH



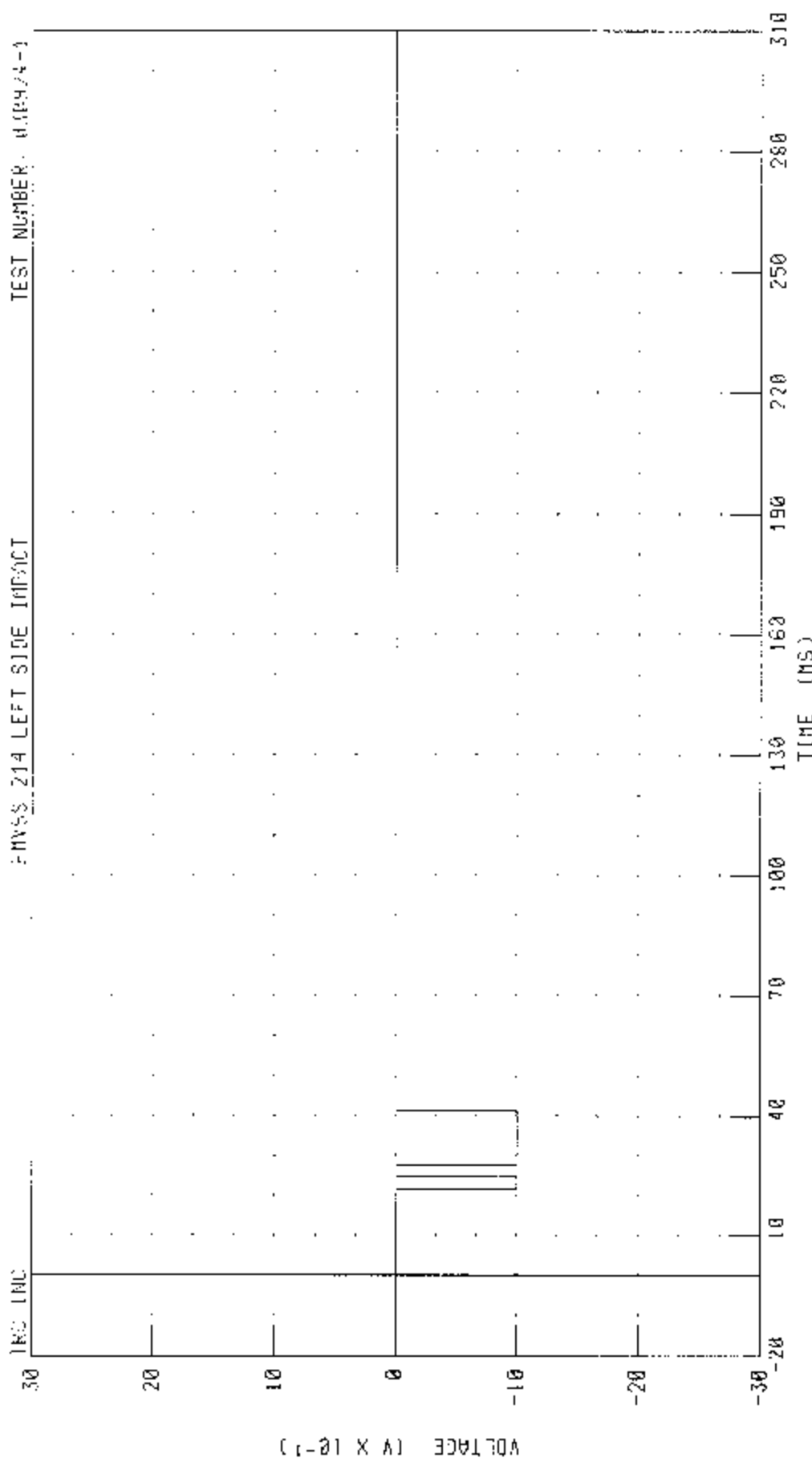
CHANNEL: SHEET1 FILTER: CH CLASS: 1200

PEAK DATA: 0.00 V @ 310.00 MS, -1.00 V @ 14.74 MS

55-20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

DRIVER SEAT'S CONTACT SWITCH

FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 418474-1



CHANNEL PEVETJ FILTER CH. CLASS 1000

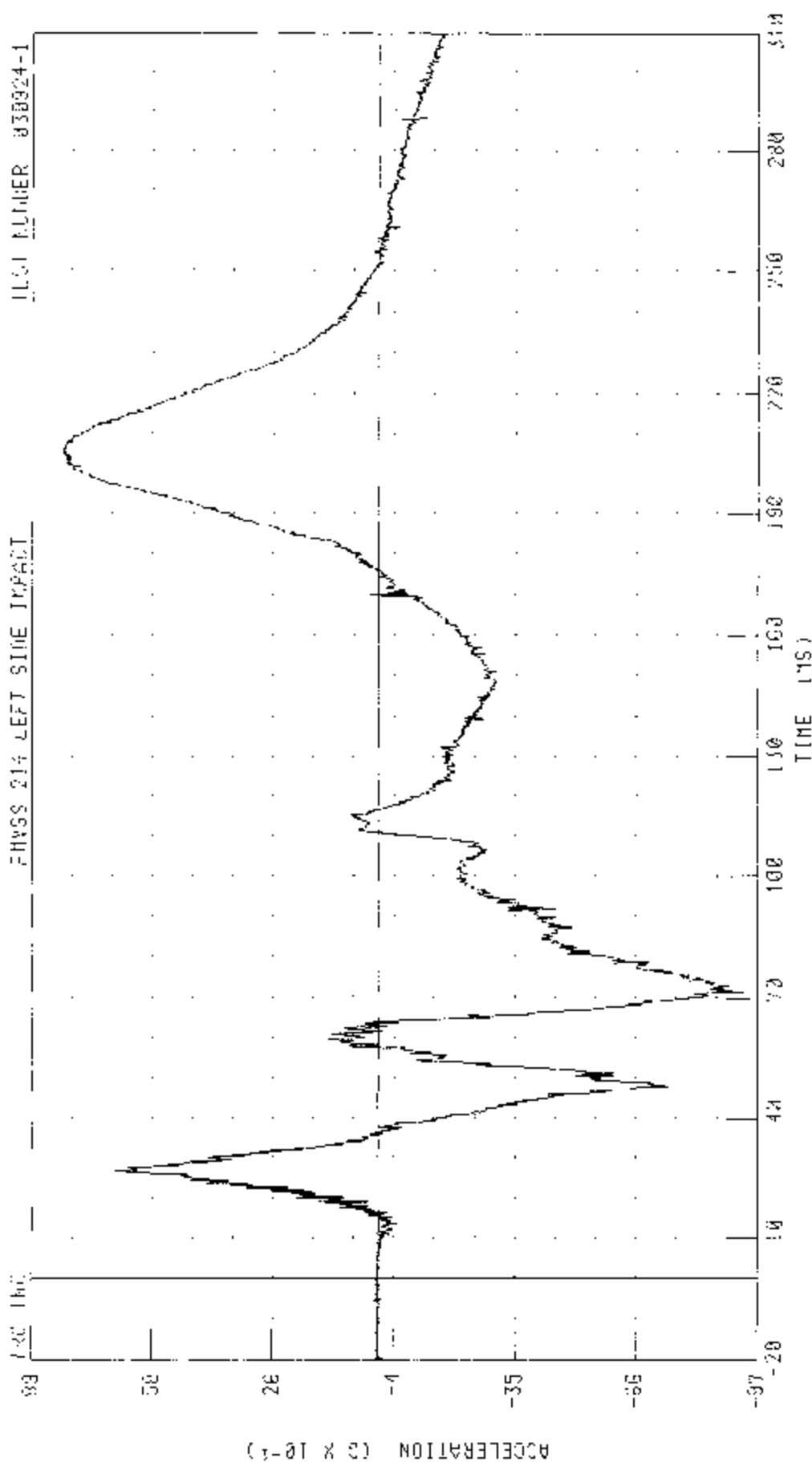
PEAK C01A 0 00 V @ 310.00 MS, -1 00 V @ 21 92 MS

55.28 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE CARTRIDGE INTO LEFT SIDE OF 2004 FORD EX350

LEFT REAR PASSENGER HEAD X AXIS REDUNDANT ALICE FRATION

PHYS 214 LEFT SIDE IMPACT

ILCI NUMBER 838924-1

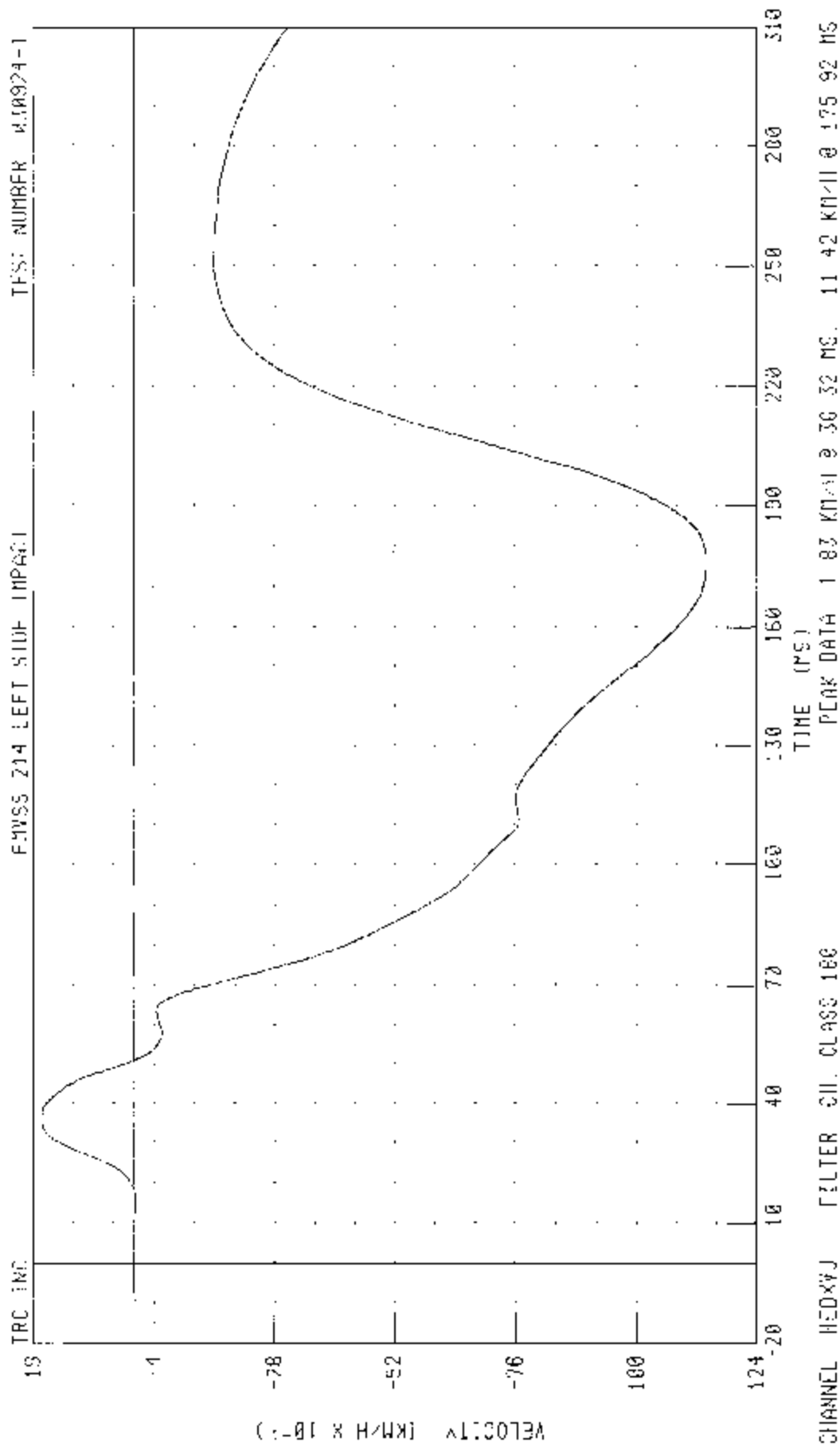


CHANNEL HEDXR4 FILTER CII CLASS 1800

TIME (MS)

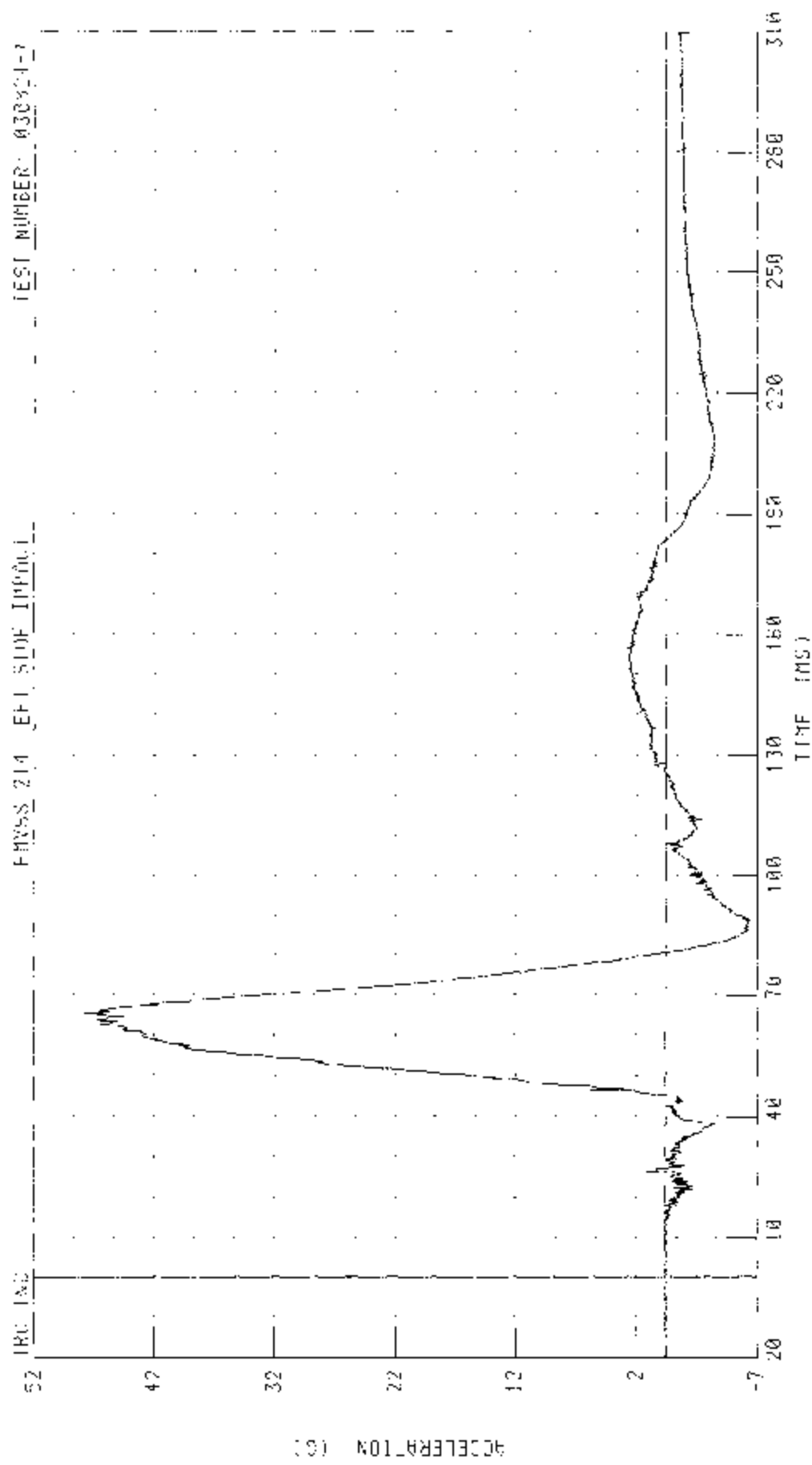
PHYS 0214- 8.12 0 0 206 10 MS -5.33 0 0 21 20 MS

55/2R KFH 90 DEGREE SIDE IMPACT CRUISING DEFORMABLE BARRIER INTO LEFT SIDE OF 2004 LEXUS RX 450  
LEFT REAR PASSENGER HEAD X-AXIS REDUNDANT VELOCITY





55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 FORD EX334  
 LEFT REAR PASSENGER HEAD Y AXIS REINFORCED ACCELERATION



TEST NUMBER: 030924-1

CHANNEL: FELYR4 FILTER: CH CLASS: 1000 PEAK DATA: 48.21 G @ 65.98 MS, -6.95 G @ 88.10 MS

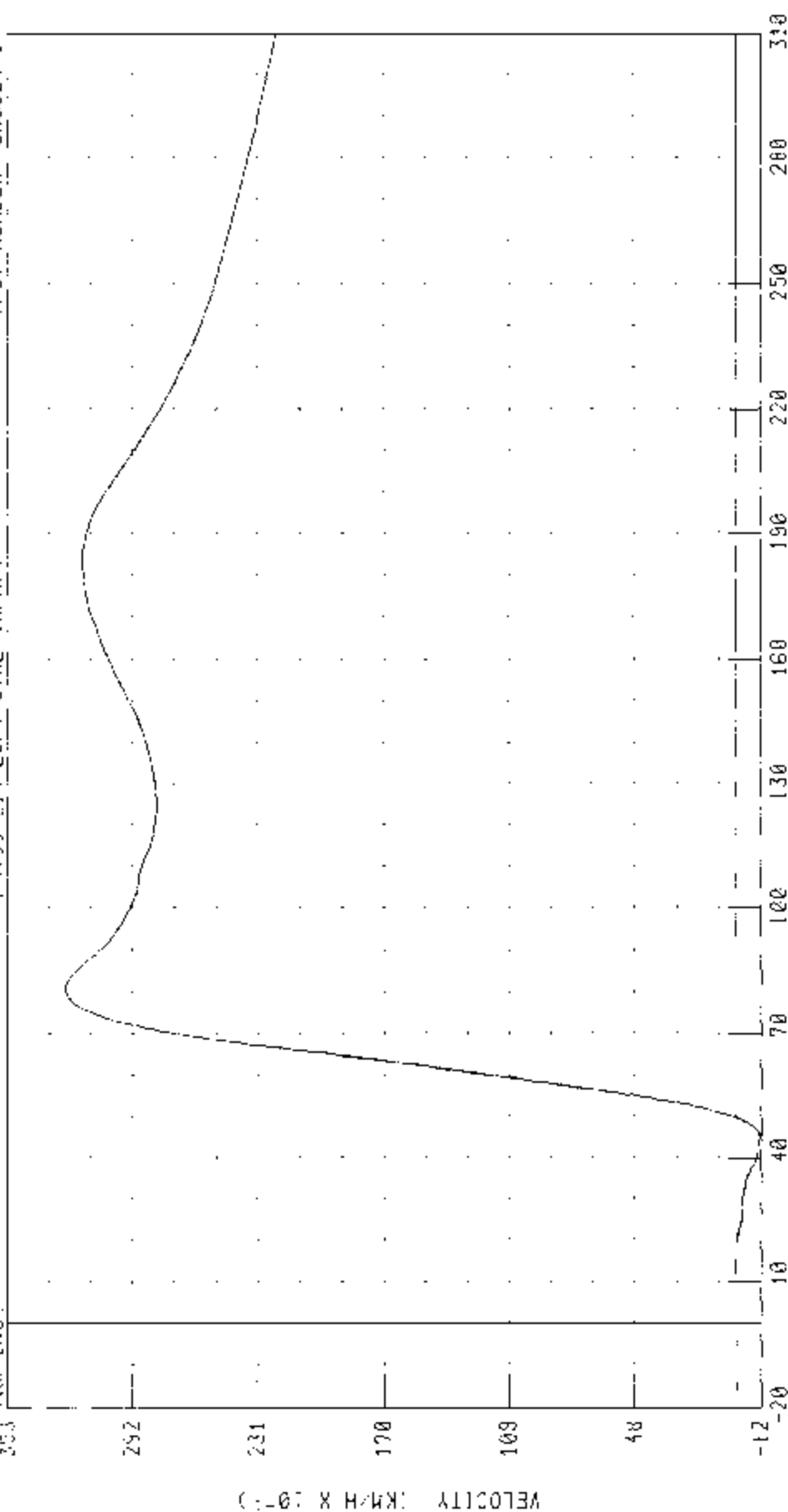
55.28 KPH 40 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER HEAD Y-AXIS REDUNDANT VELOCITY

TEST NUMBER: 030924-1

FW330 214 LEFT SIDE IMPACT

TRC INC.



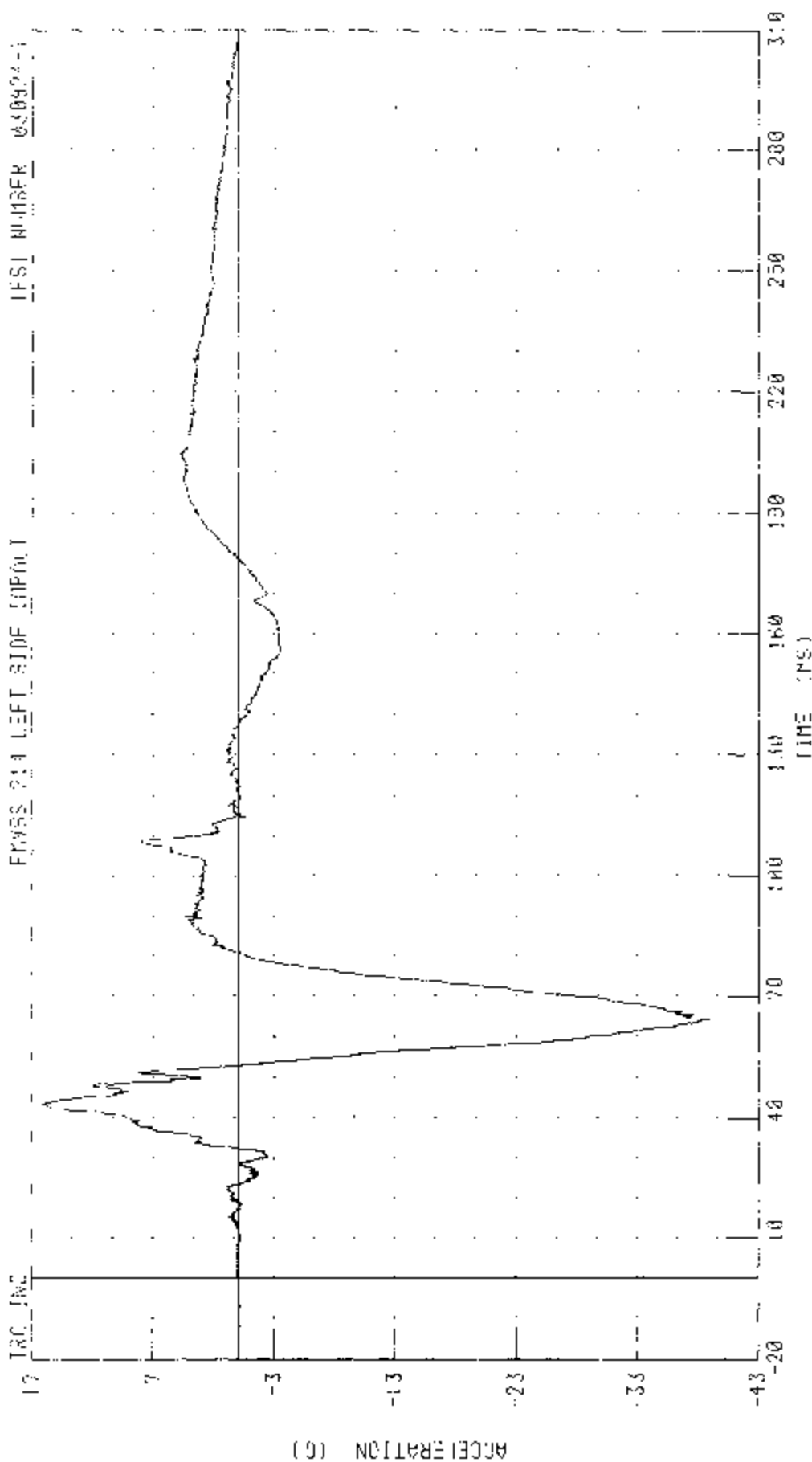
TIME (MS)

CHANNEL 4EDYVJ FLIER CH CLASS 100

PEAK DATA 32.58 KM/H @ 80.80 MS, 1.13 KM/H @ 45.17 MS

55/28 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARREL) NED LEFT SIDE OF 2004 FORD FOCUS

LEFT REAR PASSENGER HEAD Z-AXIS REINFORCEMENT DECELERATION

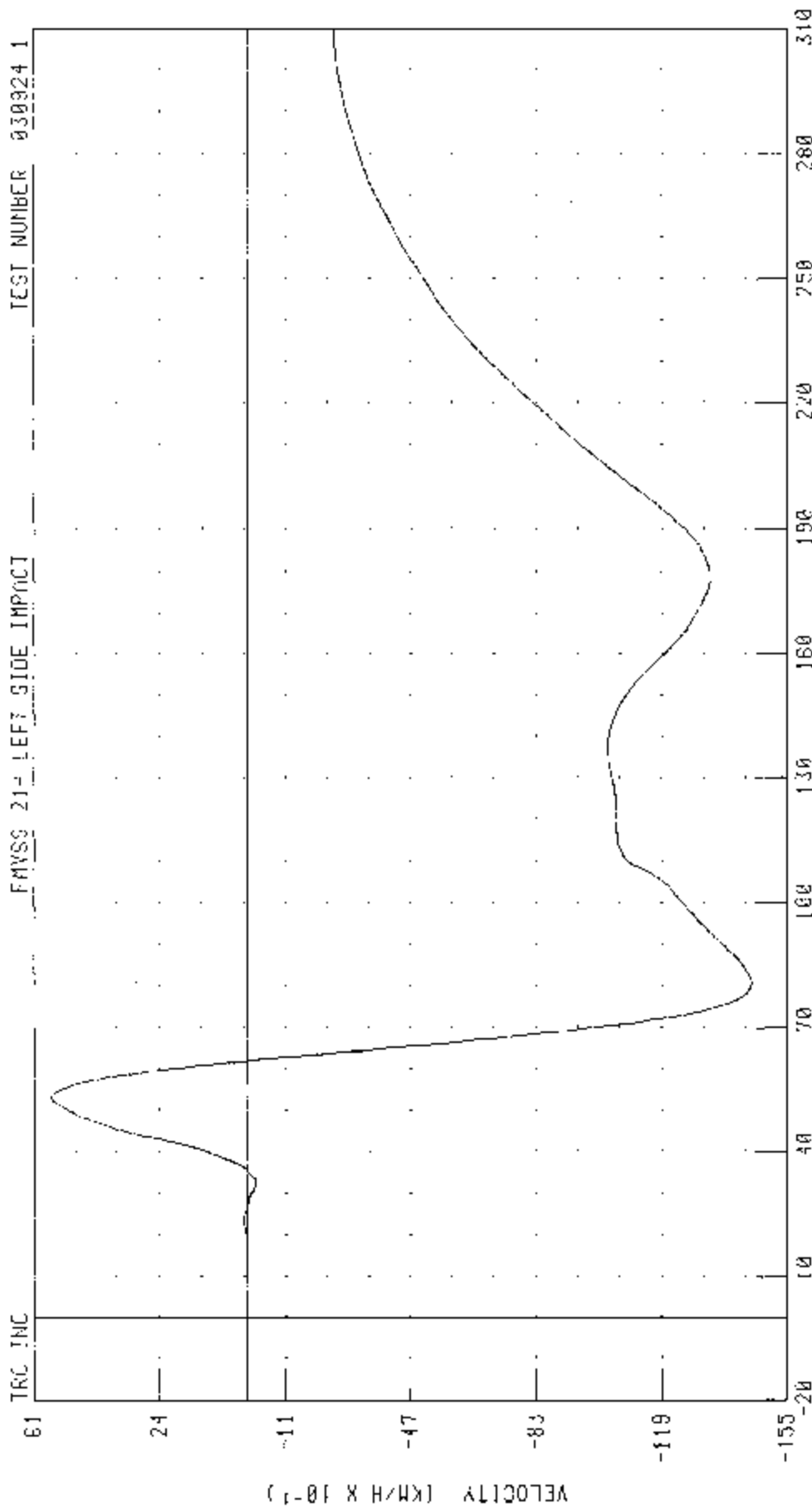


CHANNEL: HLL7R4 FILTER: CH CLASS 1000

PEAK DATA 16 17 0 43 80 MG; -38 31 0 54.40 MS

55/23 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BAR) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER HEAD Z-AXIS REMAINING VELOCITY



CHANNEL HEADZVJ FILTER CH CLASS 180

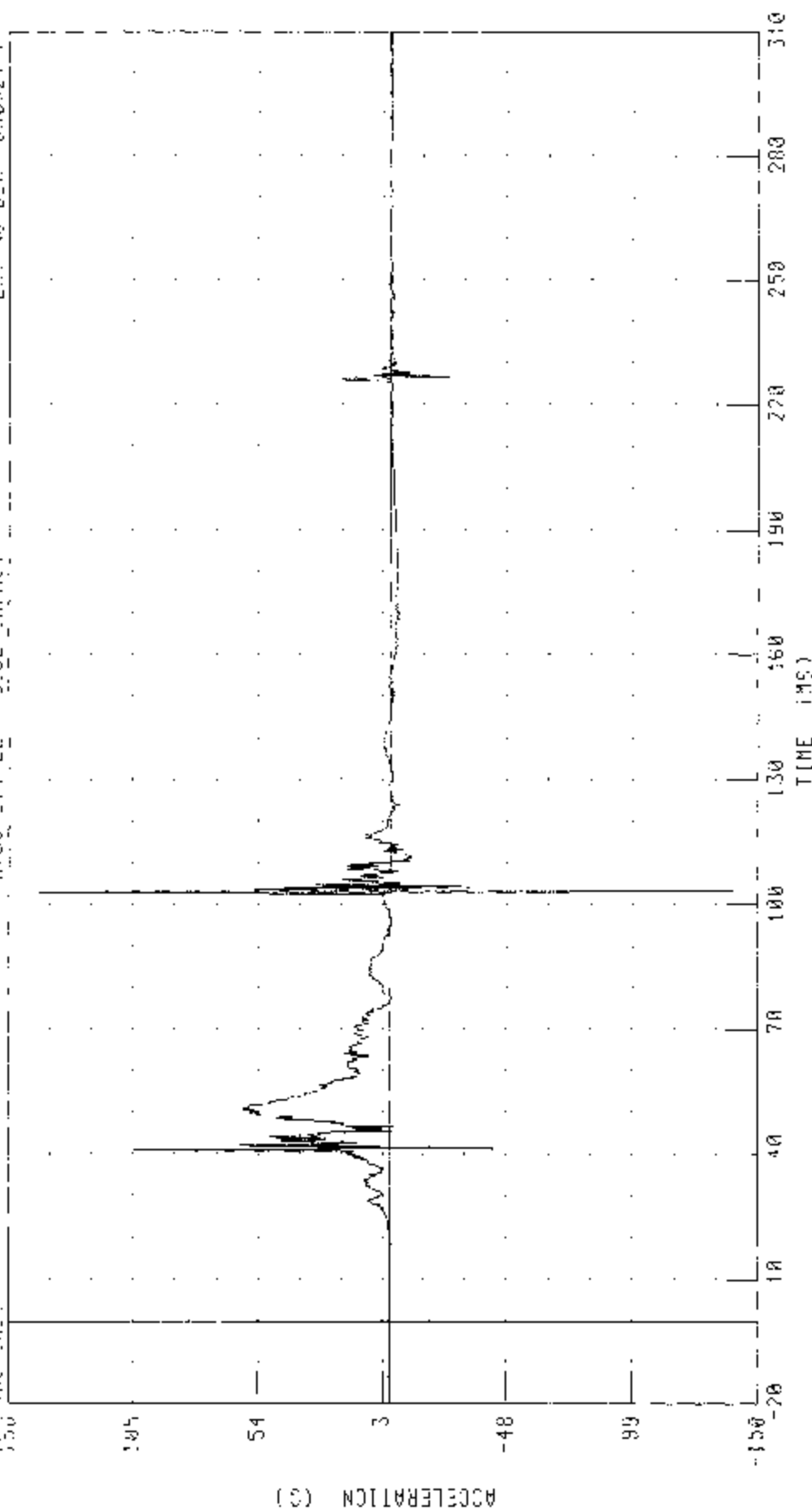
LINE (MS)

PEAK DATA 5 62 KM/H 0 52 95 MS; -14 46 KPH 6 80 95 MS

55 28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BAR-1-3) INIT LEFT SIDE OF 2004 LEXUS RX330

1F57 REAR PASSENGER UPPER R12 1-6 AXIS REDUNDANT ACCELERATION

TRC INC. FVSS 214 LEFT SIDE IMPACT TEST NUMBER 030924 1

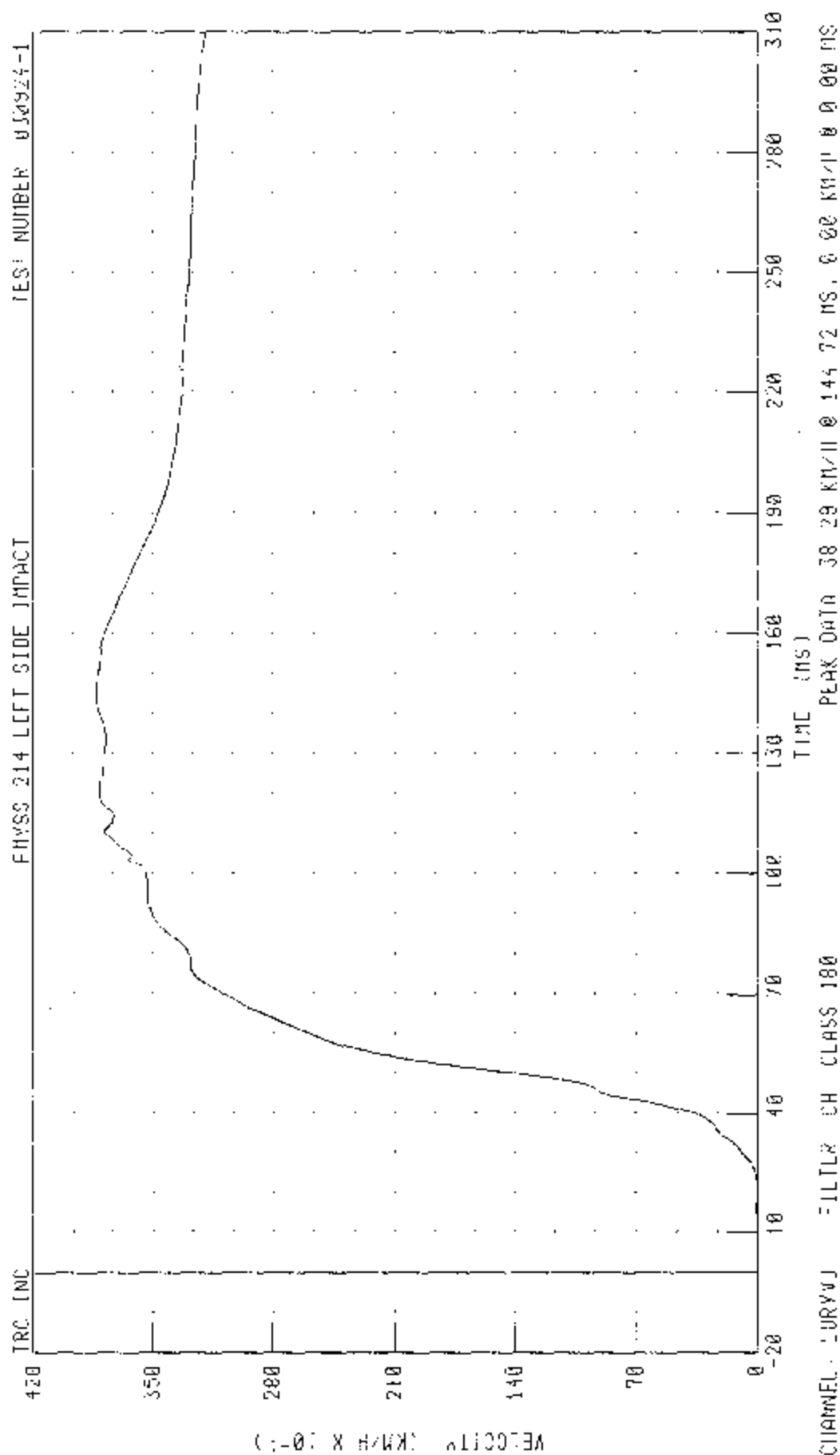


CHANNEL 1 URYR4 FILTER: 0-1 CLASS 1000

PEAK DATA: 143.25 G @ 102.95 MS, -140.07 G @ 103.44 MS

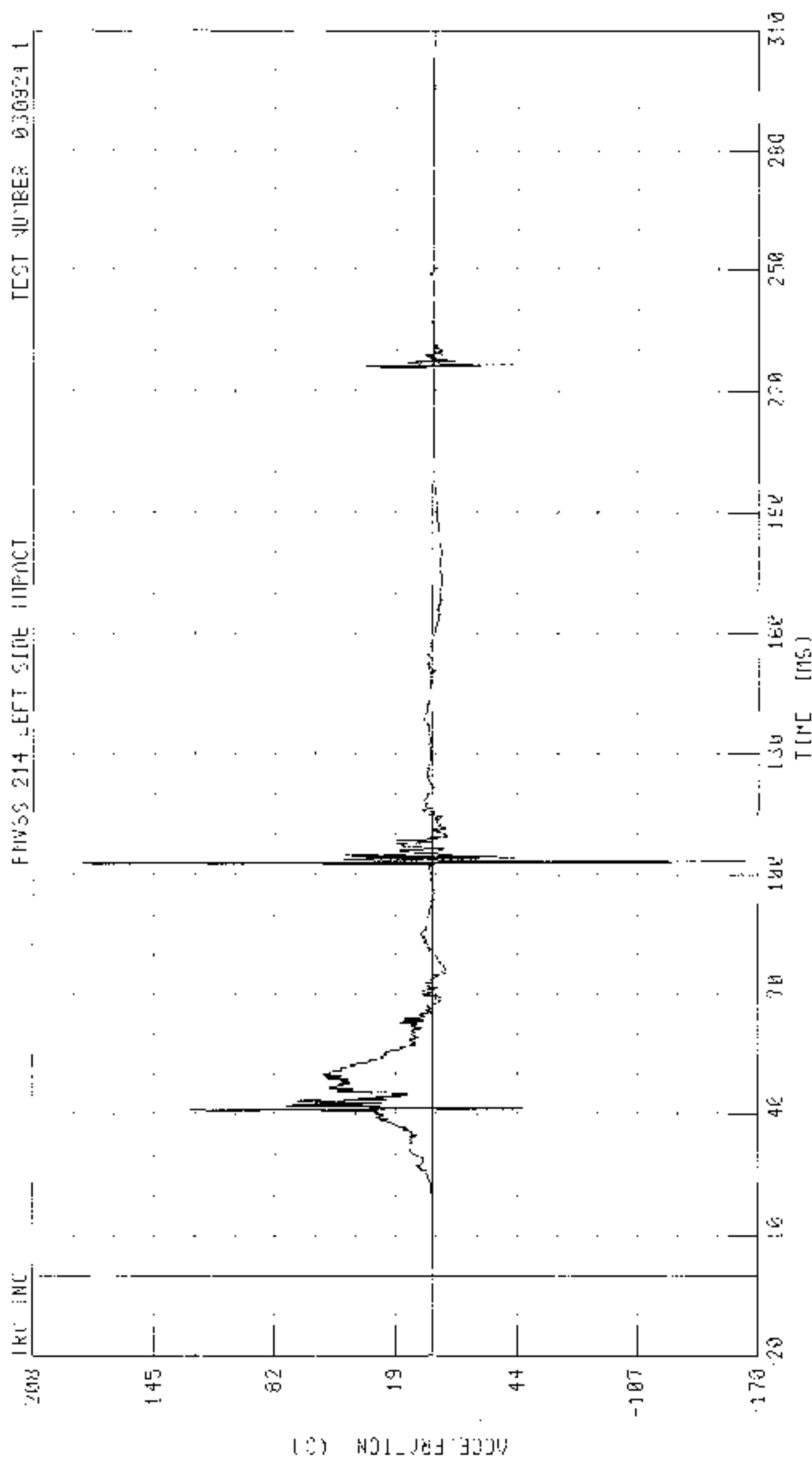
55 MPH KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2001 LEXUS RX330

LEFT REAR PASSENGER UPPER RIB Y-AXIS RECORDANT VELOCITY



05/28 4:24 PM JHU-214 SIDE IMPACT (MOVING DEFORMABLE CARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER LOWER RIB Y AXIS REDUCANT ACCELERATION



CHANNEL LLRYR4 FILTER CII CLASS 1000

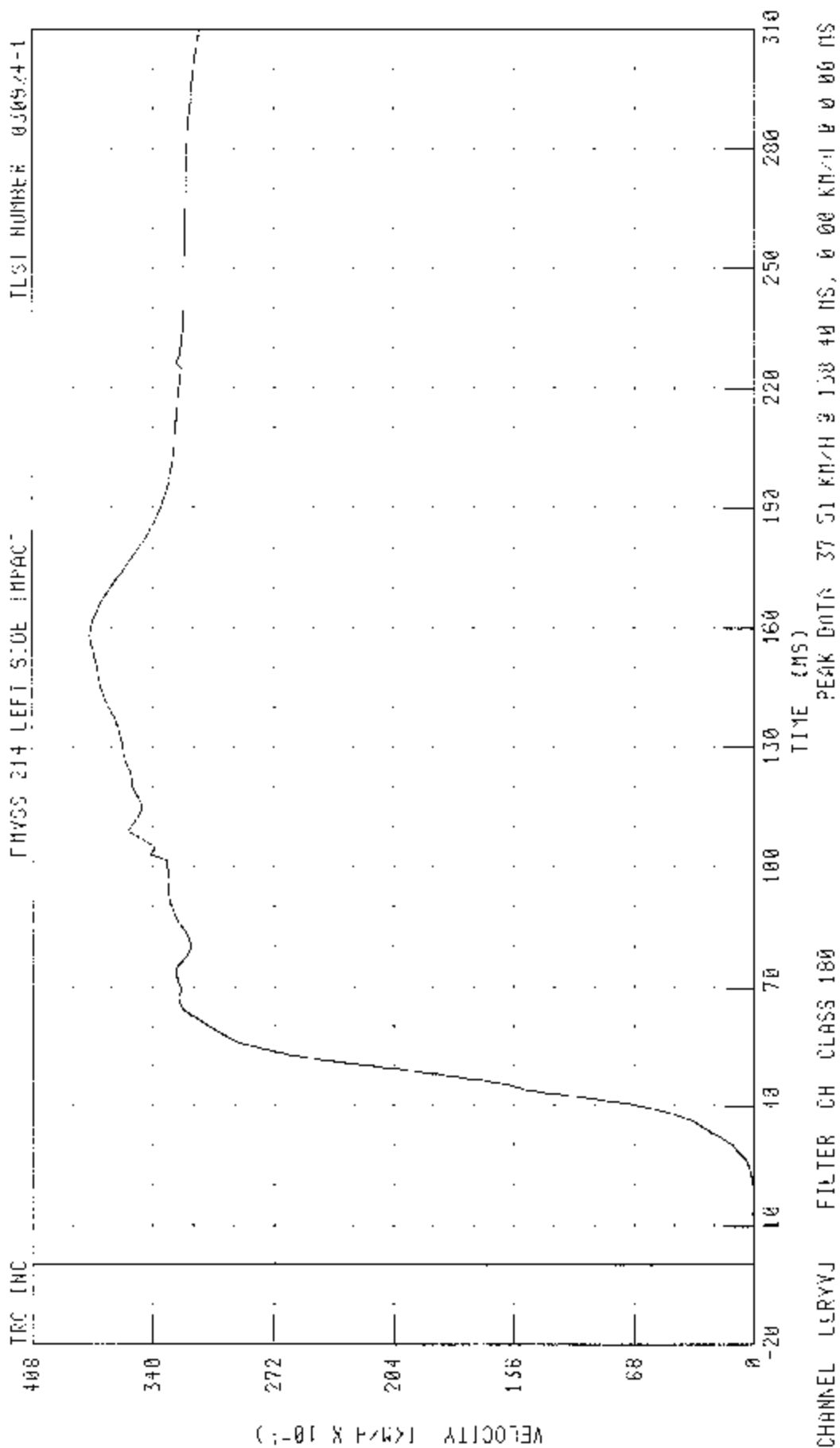
PEAK DATA 187.76 C @ 103.84 MS, 152.90 C @ 103.44 MS

55-20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER LOWER RIB Y-AXIS REDUNDANT VELOCITY

TEST NUMBER 030924-1

FMVSS 214 LEFT SIDE IMPACT



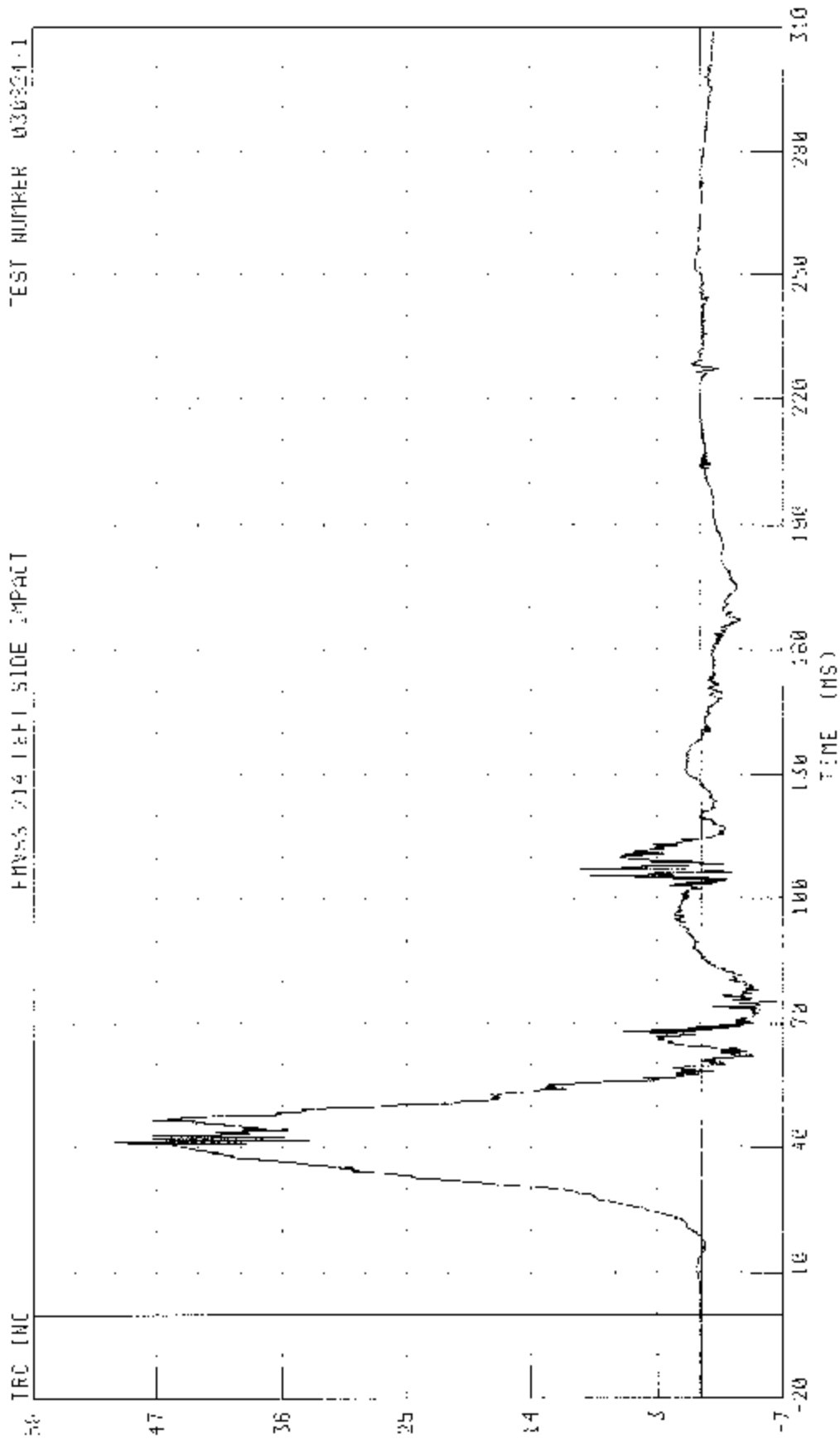


55/20 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION

PHASE 214 LEFT SIDE IMPACT

TEST NUMBER 030924-1



CHANNEL 1:2YR4 FILTER ON GLOSS 1000

PEAK DATA 54.03 0.3 41.44 MS, 0.03 0.0 95.78 1.9

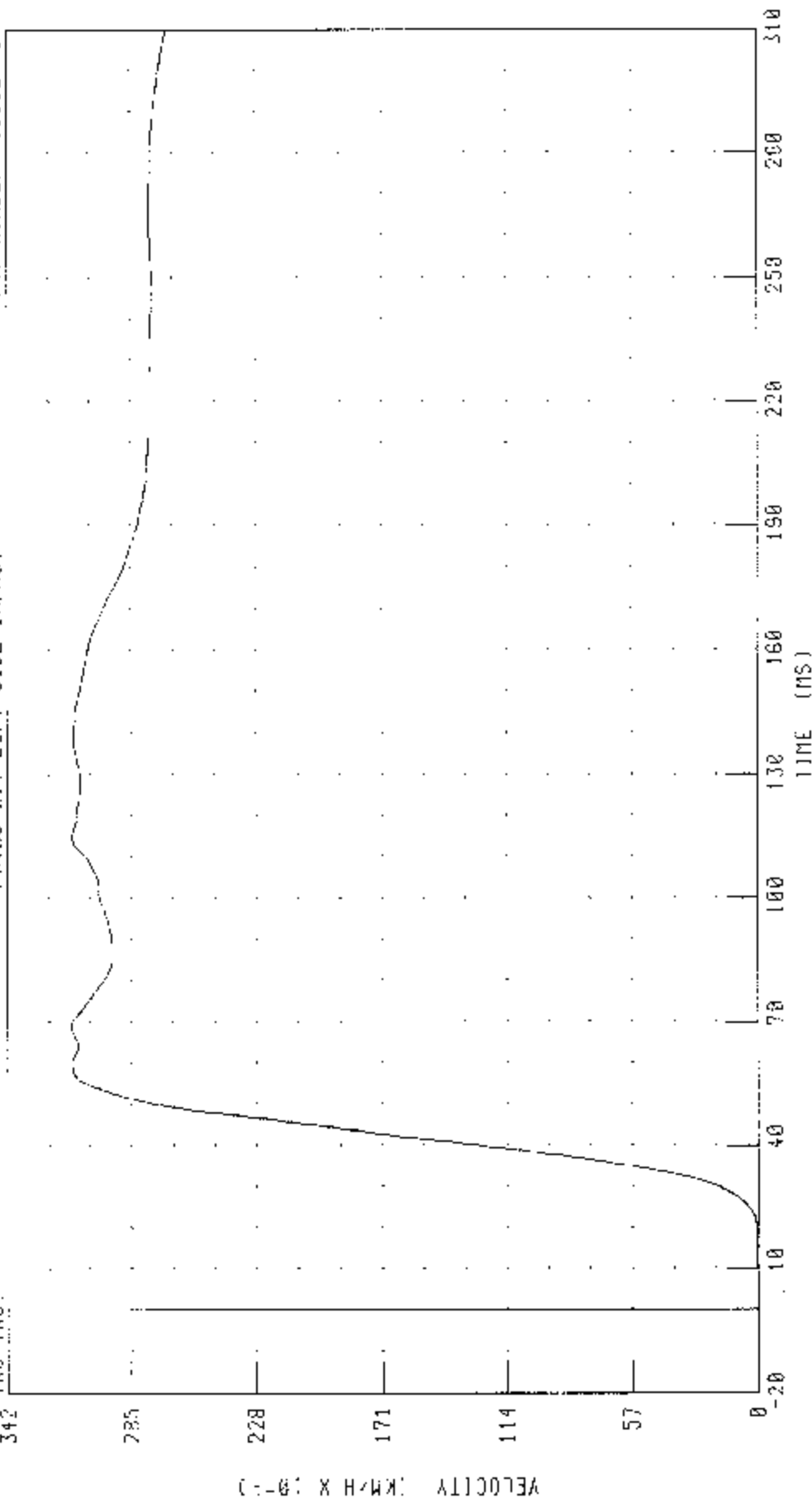
55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT VELOCITY

IRC INC.

FMVSS 214 LII SIDE IMPACT

TEST NUMBER 030924 1



CHANNEL 1: 20VJ FILTER CH CLASS 180

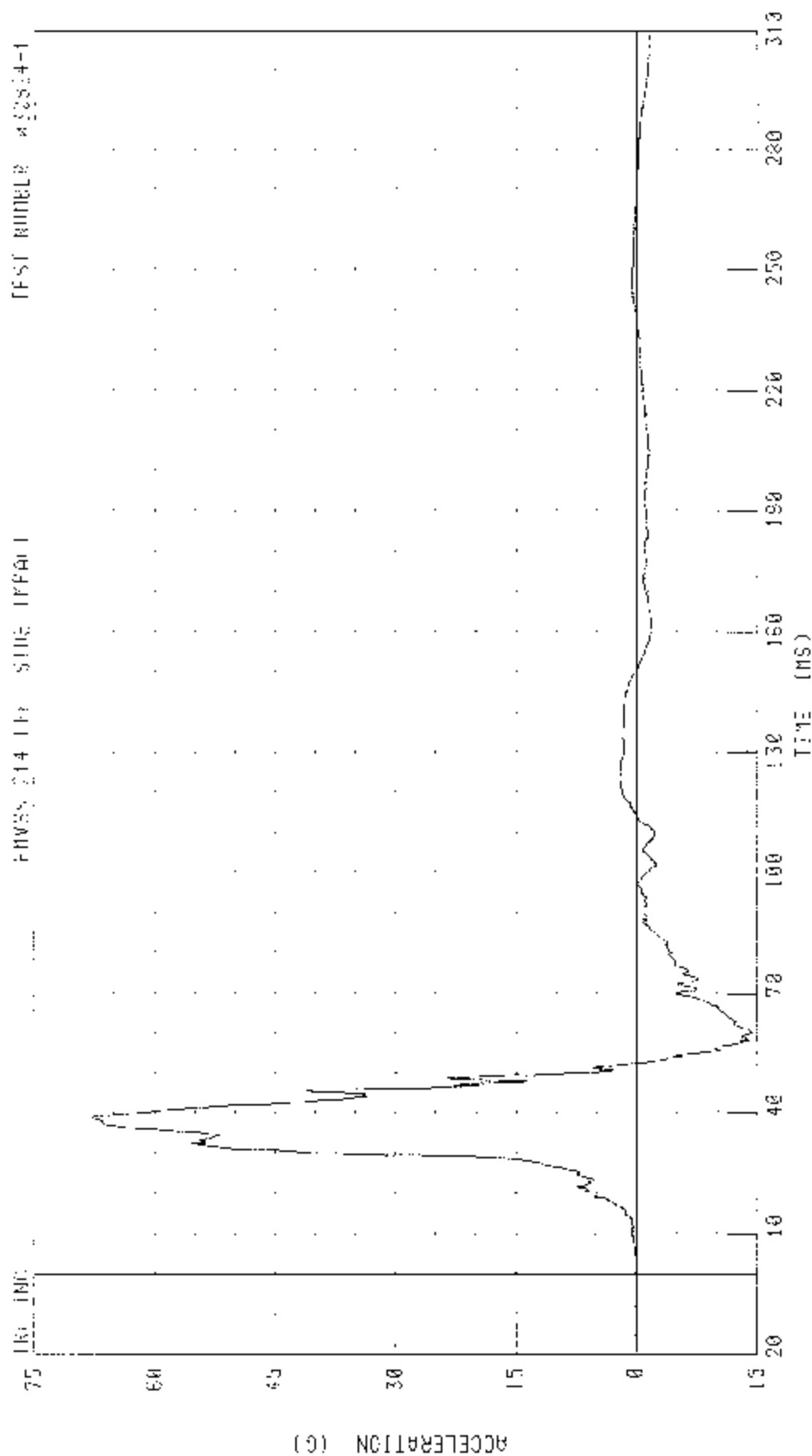
PEAK DATA: 31 29 KM/H @ 68 96 MS, 0 80 KM/H @ 0 80 MS

55-10 KPH 00 DEGREE SIDE IMPACT (MOVING DEFORMABLE CARRIER) INTO LEFT SIDE OF 2004 LEXUS SC300

LEFT REAR PASSENGER PEDESTAL SEATS REBOUNDING ACCELERATION

TEST NUMBER W28814-1

PROB: 214 114 SIDE IMPACT



CHANNEL PCVVR4 FILTER CH 1 425 1000

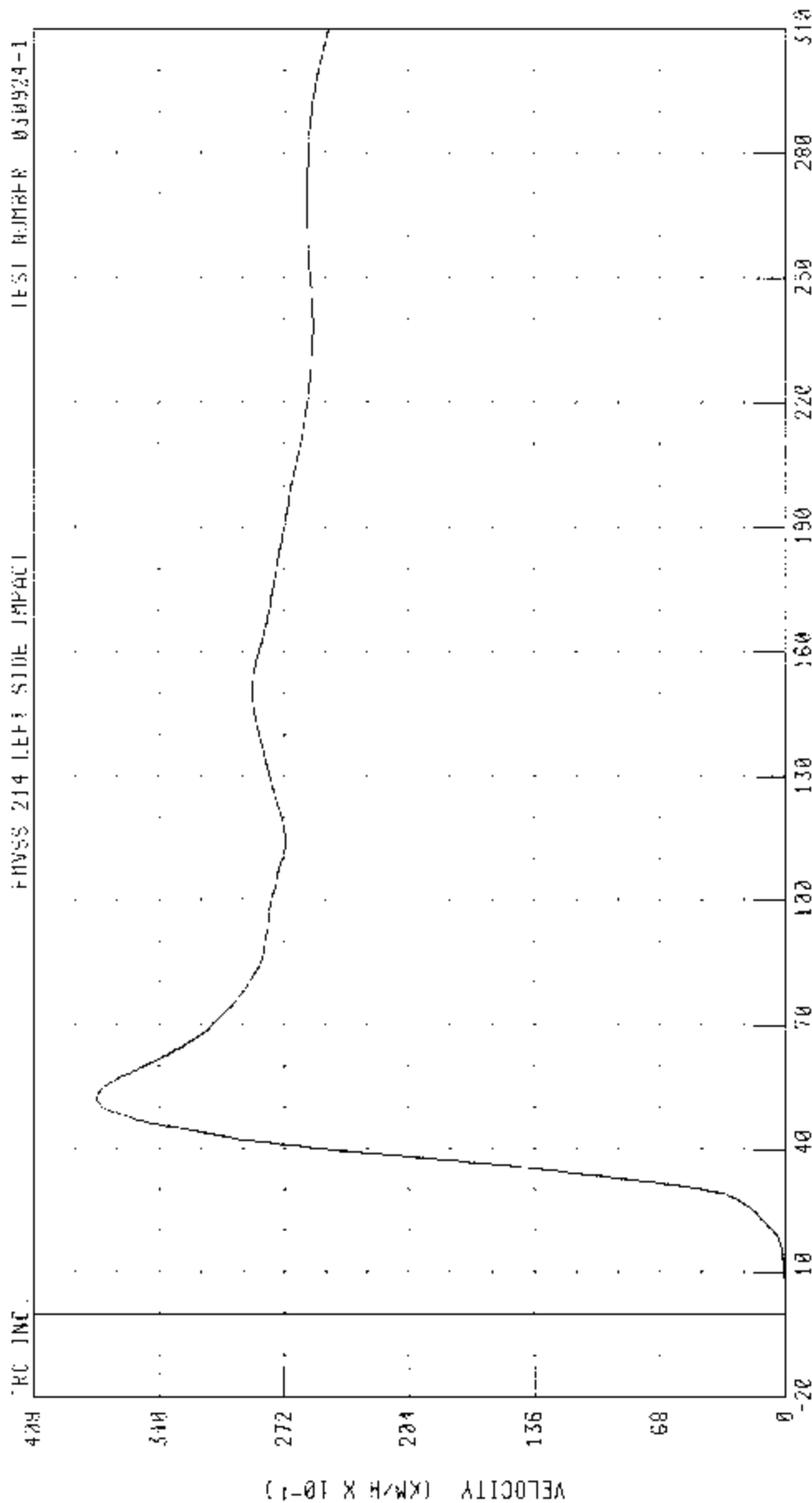
PEAK DATA 67.75 G @ 38.95 MS, -14.35 G @ 60.18 MS

55/28 2PH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) IMP LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER PELVIS Y-AXIS REDUNDANT VELOCITY

TEST NUMBER 030924-1

FMVSS 214 LEFT SIDE IMPACT

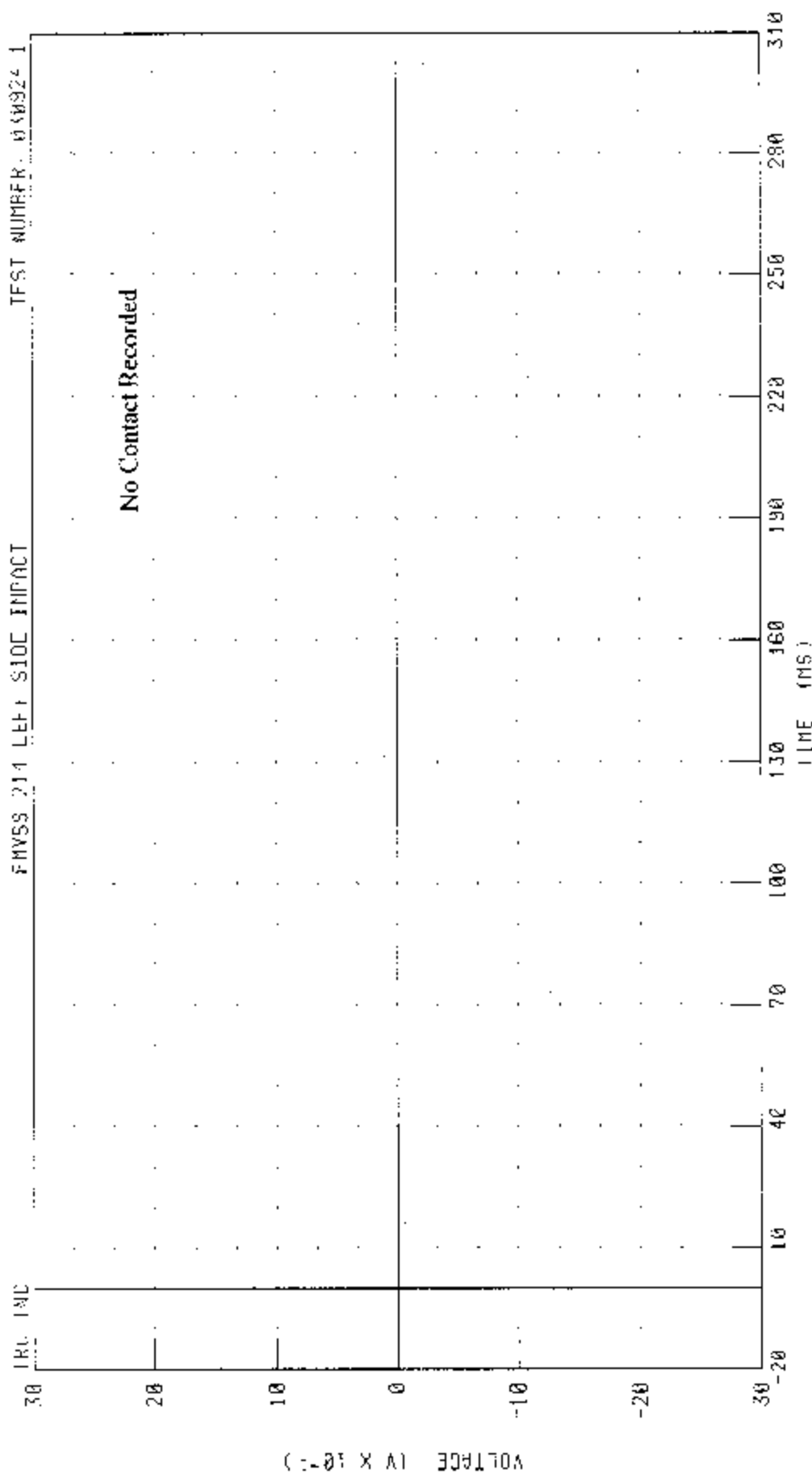


TIME (MS)

CHANNEL PEVVUJ FILTER CH. CLASS 100

PEAK DATA 37 35 KM/H @ 52 56 MS, @ 30 KM/H @ 0 00 MS

55.7° 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER: INTO LEFT SIDE OF 2004 FORD EX350  
LEFT REAR PASSENGER SHOULDER CONTACT SWITCH



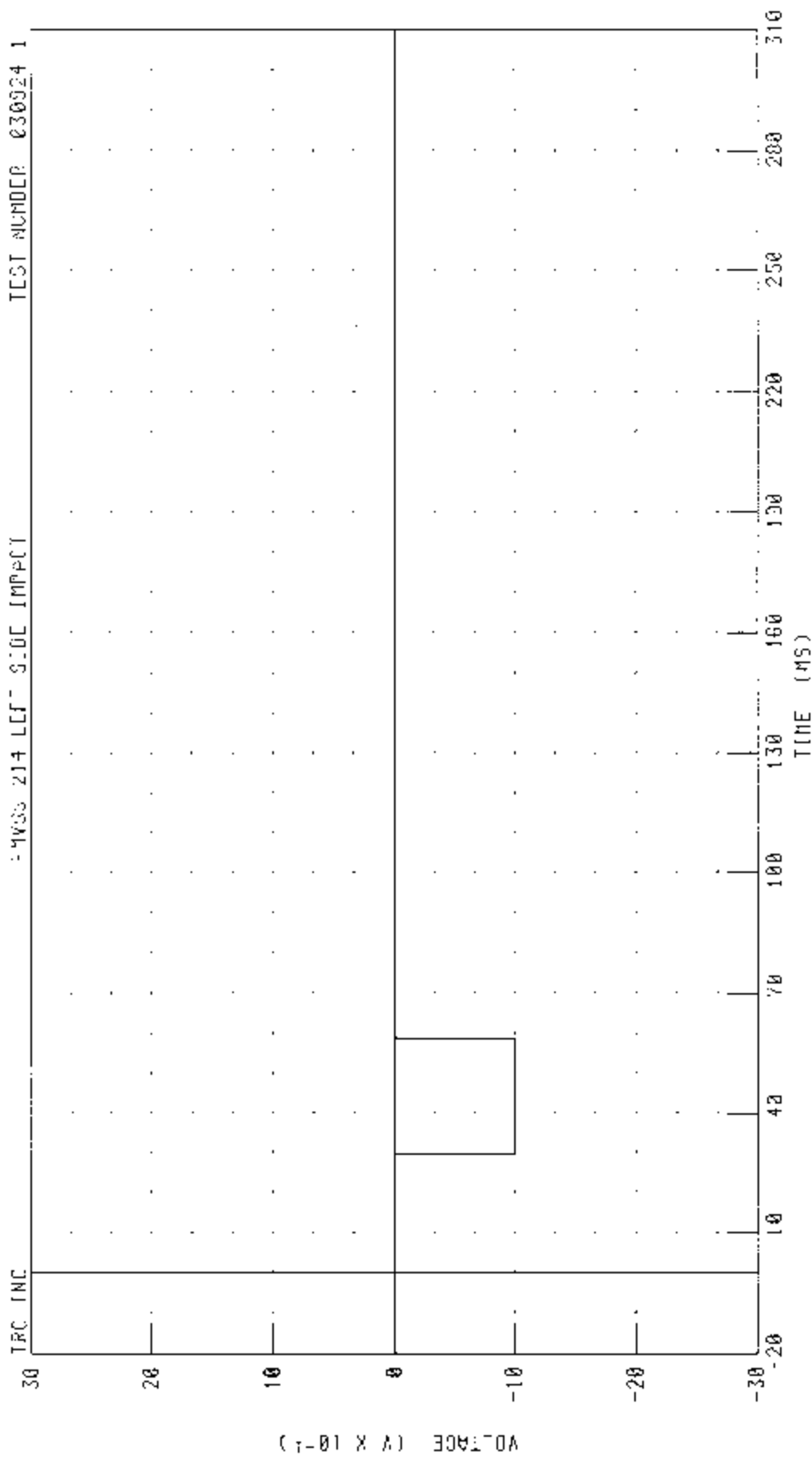
CHANNEL: SHLETA FILTER: CH CLASS 1000

PEAK DATA: 0.00 V @ 310.00 MS: 0.00 V @ -20.00 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 FORD F4300  
 LEFT REAR PASSENGER FOLIO CONTACT SWITCH

TEST NUMBER 030924 1

4V33 214 LEFT SIDE IMPACT



TIME (MS)

CHANNEL PEVET4 FILTER CH. CLASS 1000

PEAK DATA: 0.00 V @ 310.00 MS, -1.00 V @ 29.76 MS

Test Vehicle Instrumentation Plots

Acceleration Data - Filter Class 60

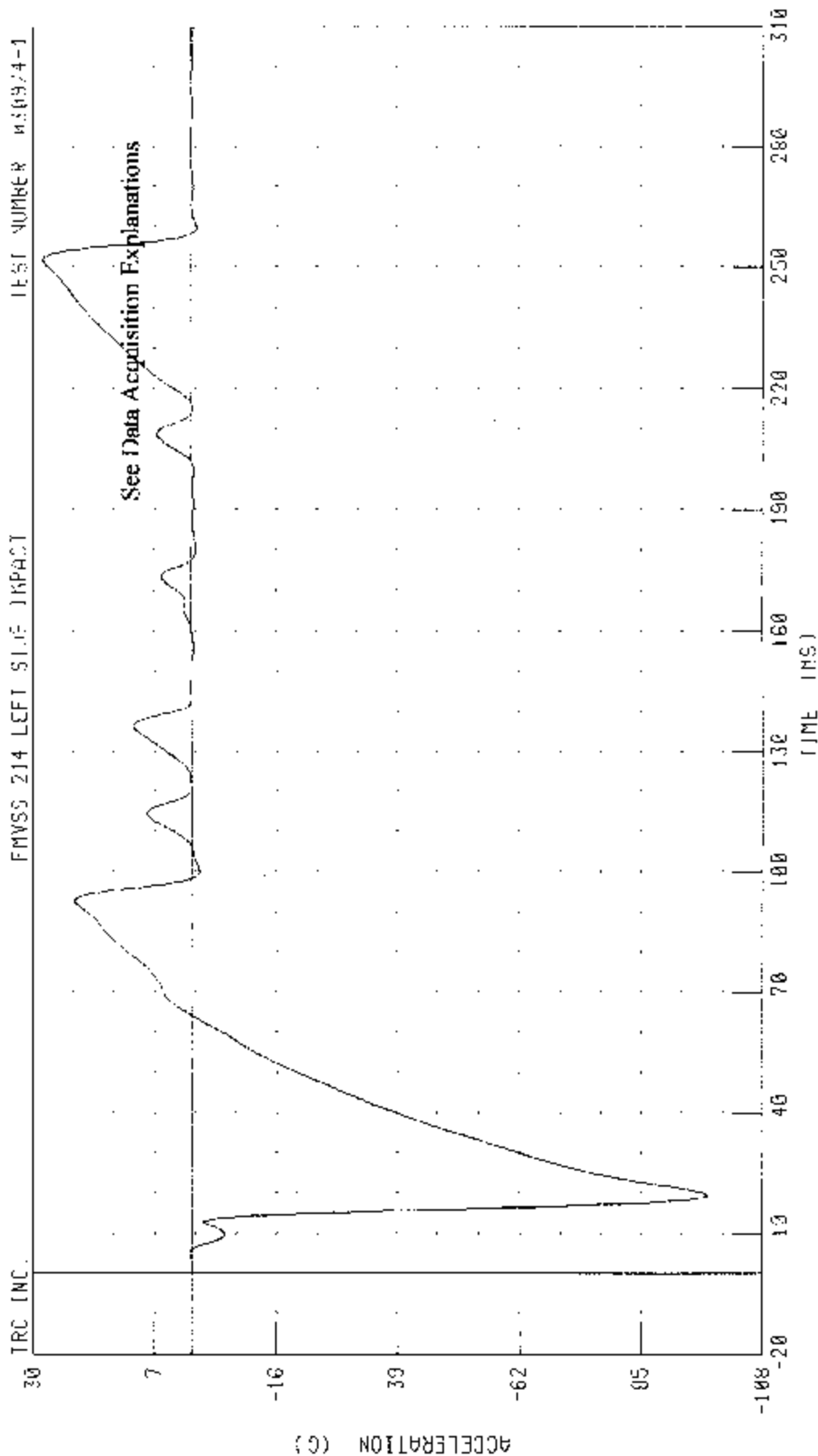
Integration Data - Filter Class 180

55/20 KPH 00 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

RIGHT SIDE SILL AT FRONT SEAT X-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER M30924-1



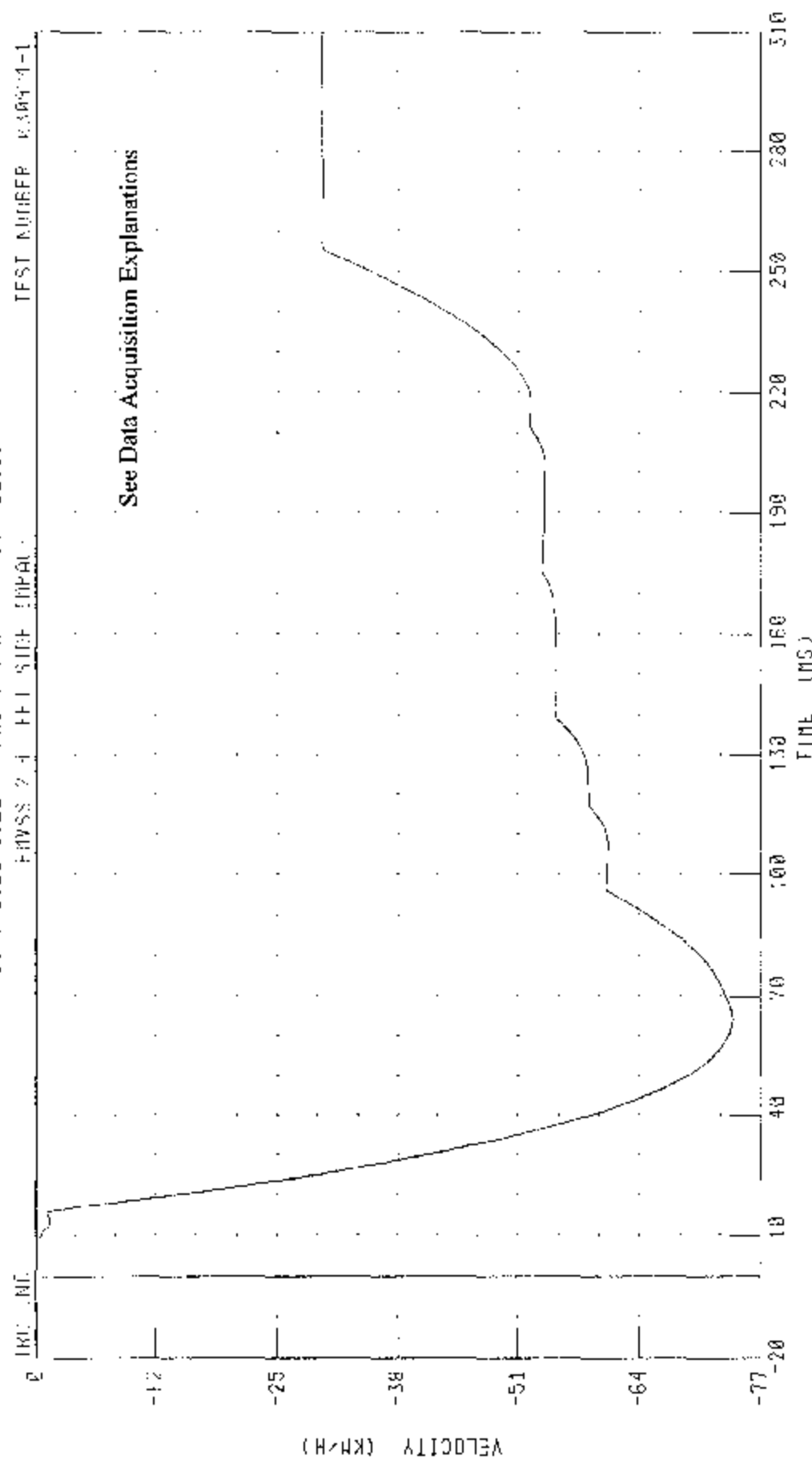
CHANNEL: RFXSG: FILTER: CH CLASS 60

PEAK DATA: 28 15 G @ 251 76 MS, -97 57 G @ 19 44 MS



55.28 KPH 00 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

RIGHT SIDE SIL - OF FRONT SPOT X-AXIS VELOCITY



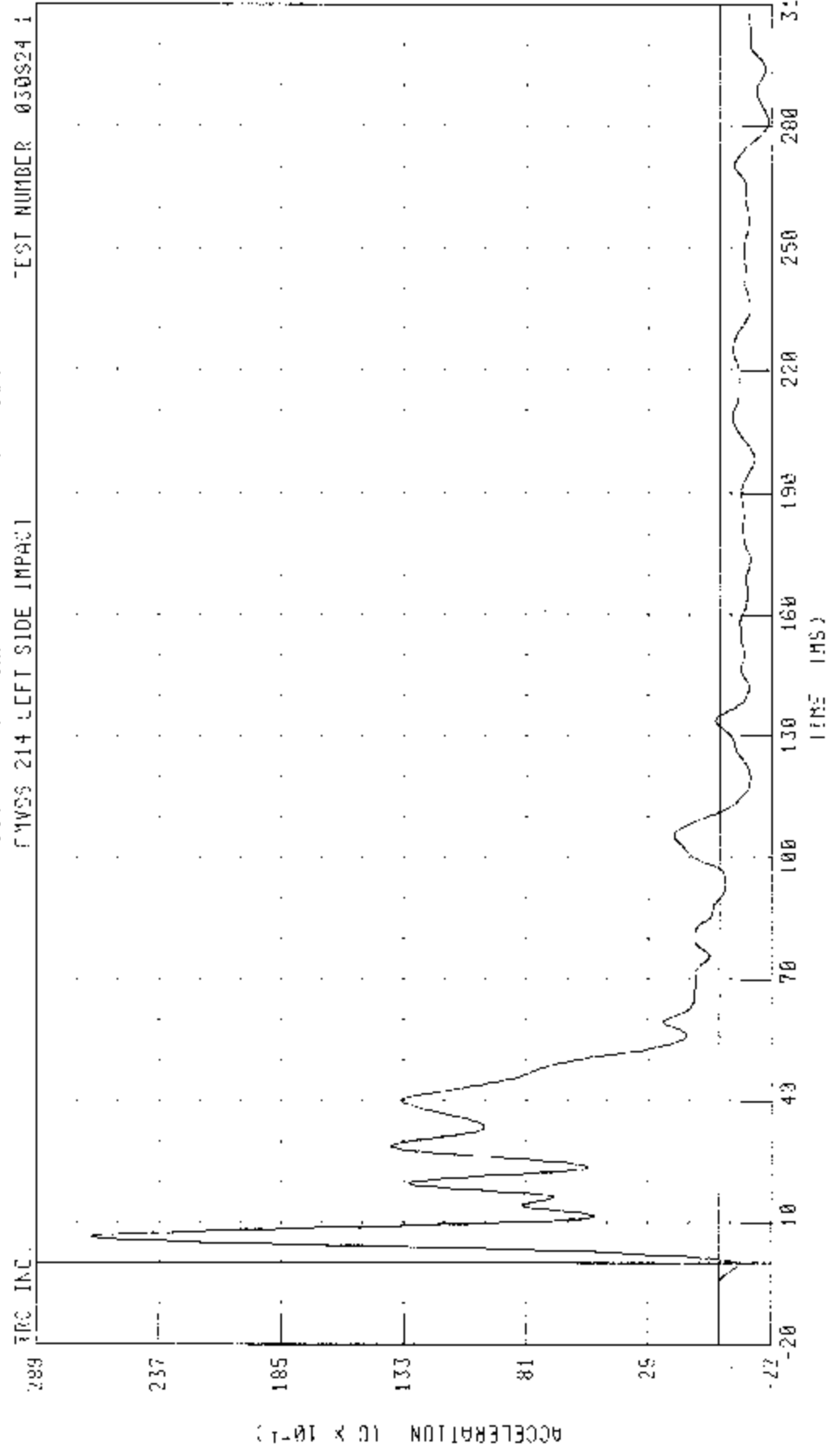
TEST NUMBER R3094-1

CHANNEL: RESXV1 FILTER: C4 CLASS: 180 TIME (MS) PEAK DATA: 0.11 0.011 0.728 MS: -71.89 KPH @ 61.28 MS

55/20 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) IMC LEFT SIDE 0-2004 FOCUS RX330

RIGHT SIDE SILL AT FRONT SEAT Y-AXIS ACCELERATION

TEST NUMBER 030924-1

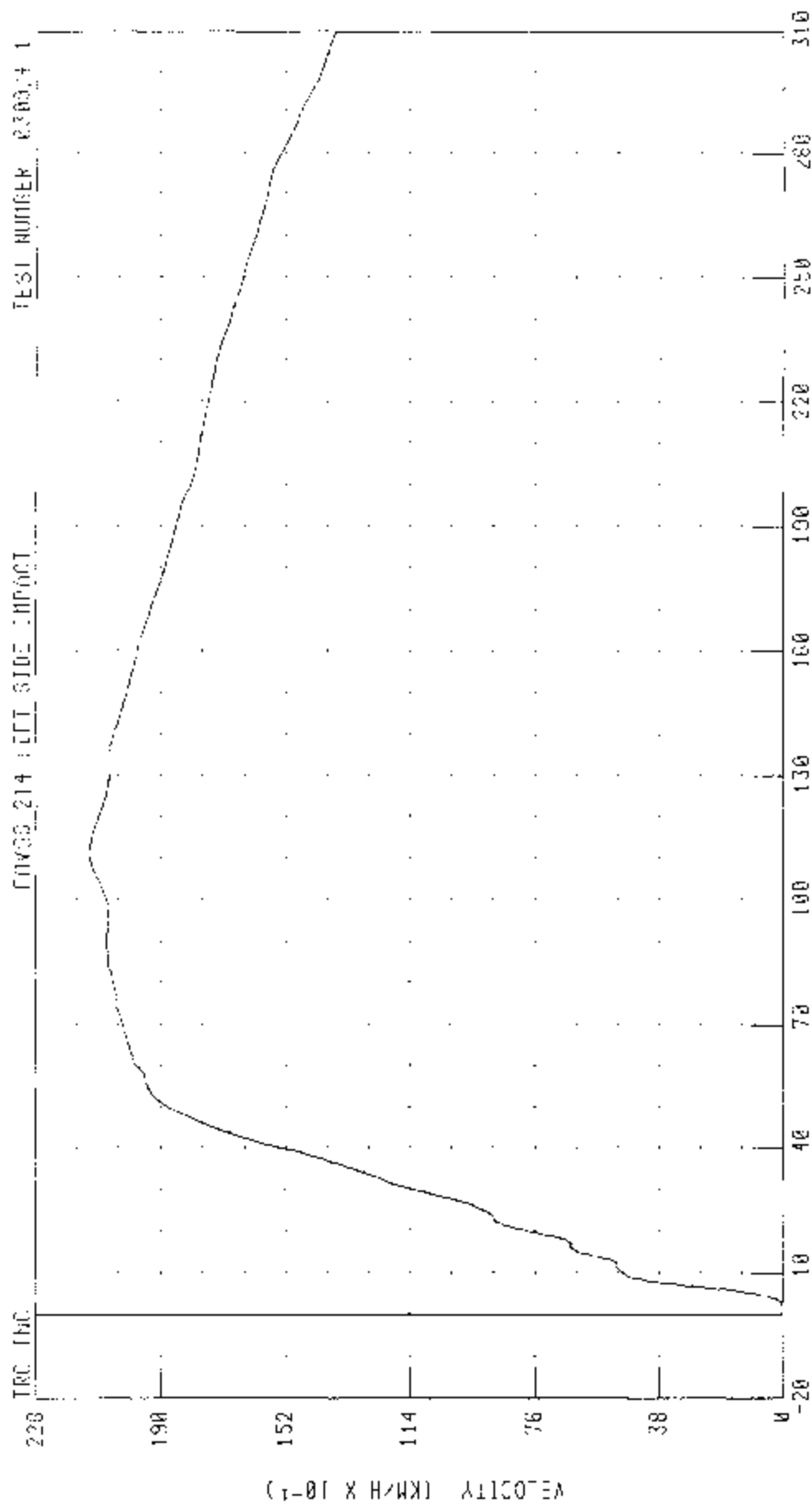


CHANNEL REF261 FILTER: CH CLASS 60

PEAK DATA 26 69 0 0 6 56 MS, -2 04 0 0 281 04 MS

55-78 MPH 90 DEGREE SLIP IMPACT (MOVING DEFORMABLE BARRIER) INIC LEFT SIDE OF 2004 LEXUS RX330

RIGHT SIDE SILL OF FRONT SEAT Y-AXIS VELOCITY



CHANNEL: RFSYV: FILTER: CH CLASS 180

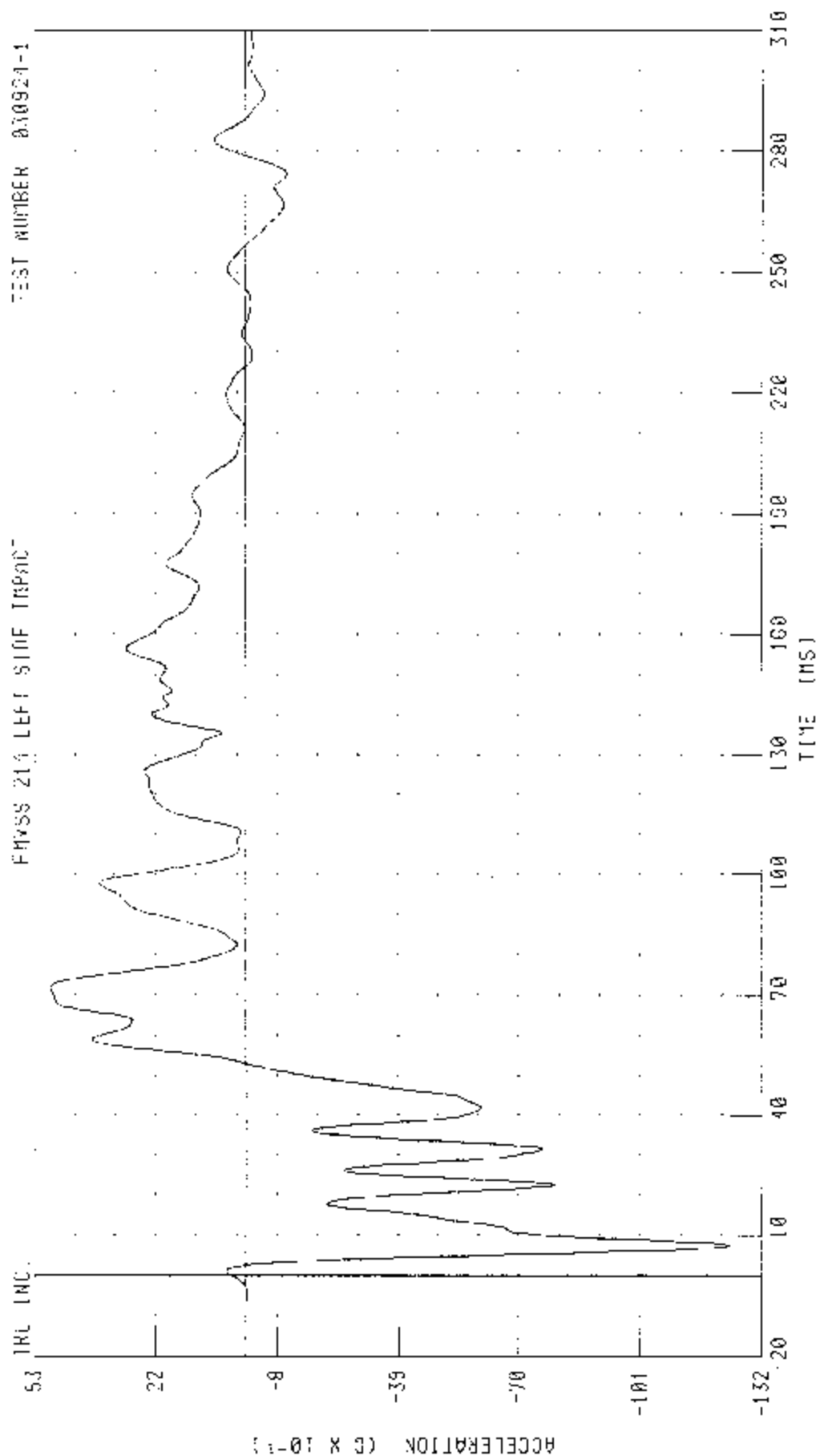
PEAK DATA 21 16 KM/H @ 110 88 MS: 0 00 KM/H @ 1 73 MS

55/26 MPH 90 DEGREE SIDE IMPACT CYCLING DEFORMABLE BARRIER INTO LEFT SIDE OF 7404 LEXUS RX330

RIGHT SIDE SEAT AT FRONT SEAT 7-GALS ACCELERATION

TEST NUMBER 030924-1

FRYSS 214 LEFT SIDE IMPACT

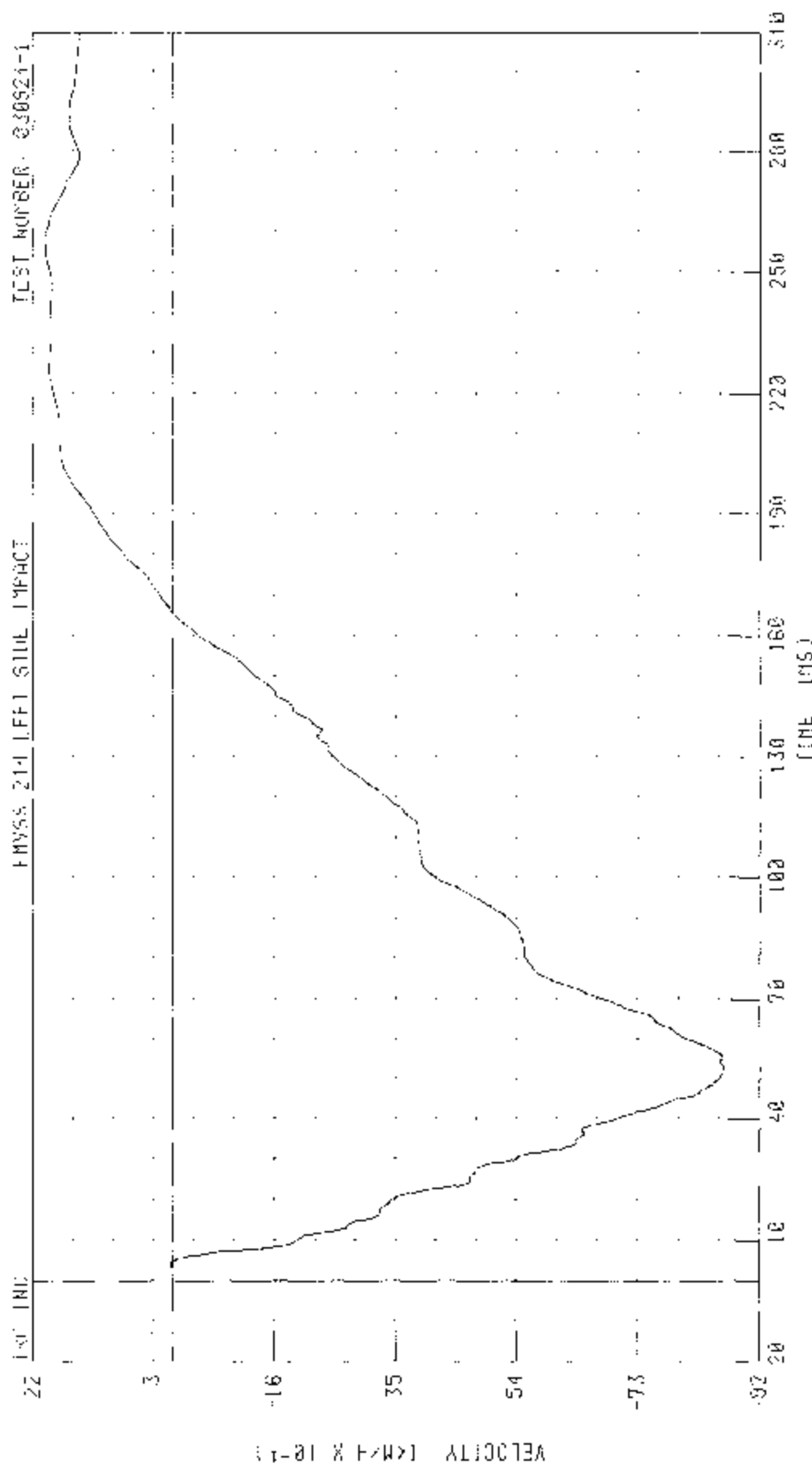


CHANNEL RFSZG1 FILTER CII CLASS 60

PEAK DATA 4 95 6 6 72 00 MS. -12 40 6 0 7 52 MS

S5/26 MPH 90 DEGREE SIDE IMPACT (MOVING VEHICLE BARRIED) INTO LEFT SIDE OF 2004 FORD EX3.6R

RIGHT SIDE SILL TO PROX SEAT 2-AXIS VELOCITY



CHANNEL: RFS7V1 FILTER: CH CLASS: 180

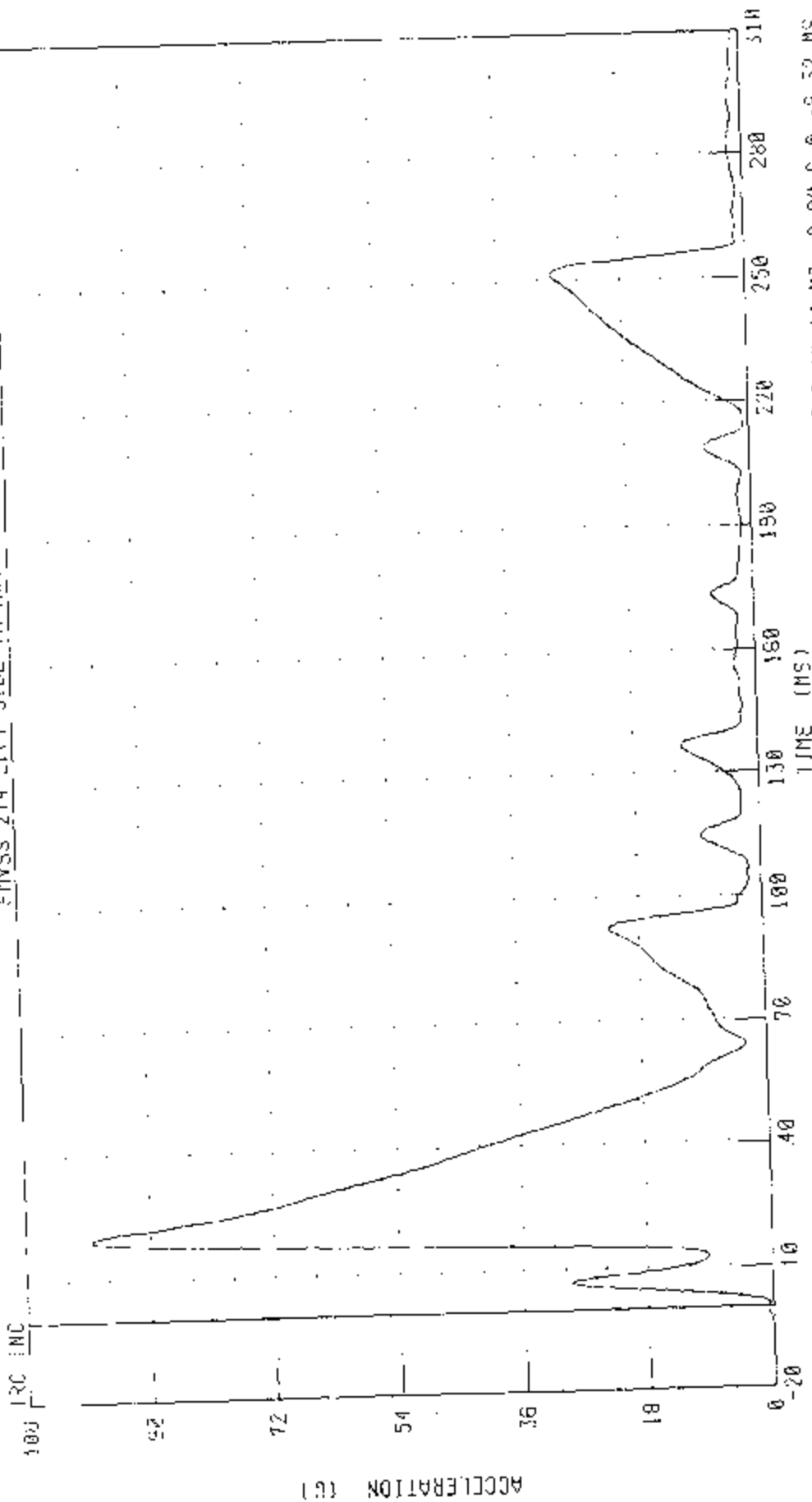
PEAK DATA: 702 MPH @ 207.12 MS, -86.64 MPH @ 52.56 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING TIFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

RICHY SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION

TEST NUMBER 030924-1

FMVSS 214 LEFT SIDE IMPACT



PEAK DATA 98 50 G @ 19 44 MS, 0 00 G @ -9 52 MS

CHANNEL: RFSRC1 FILTER: CH. CLASS: 60

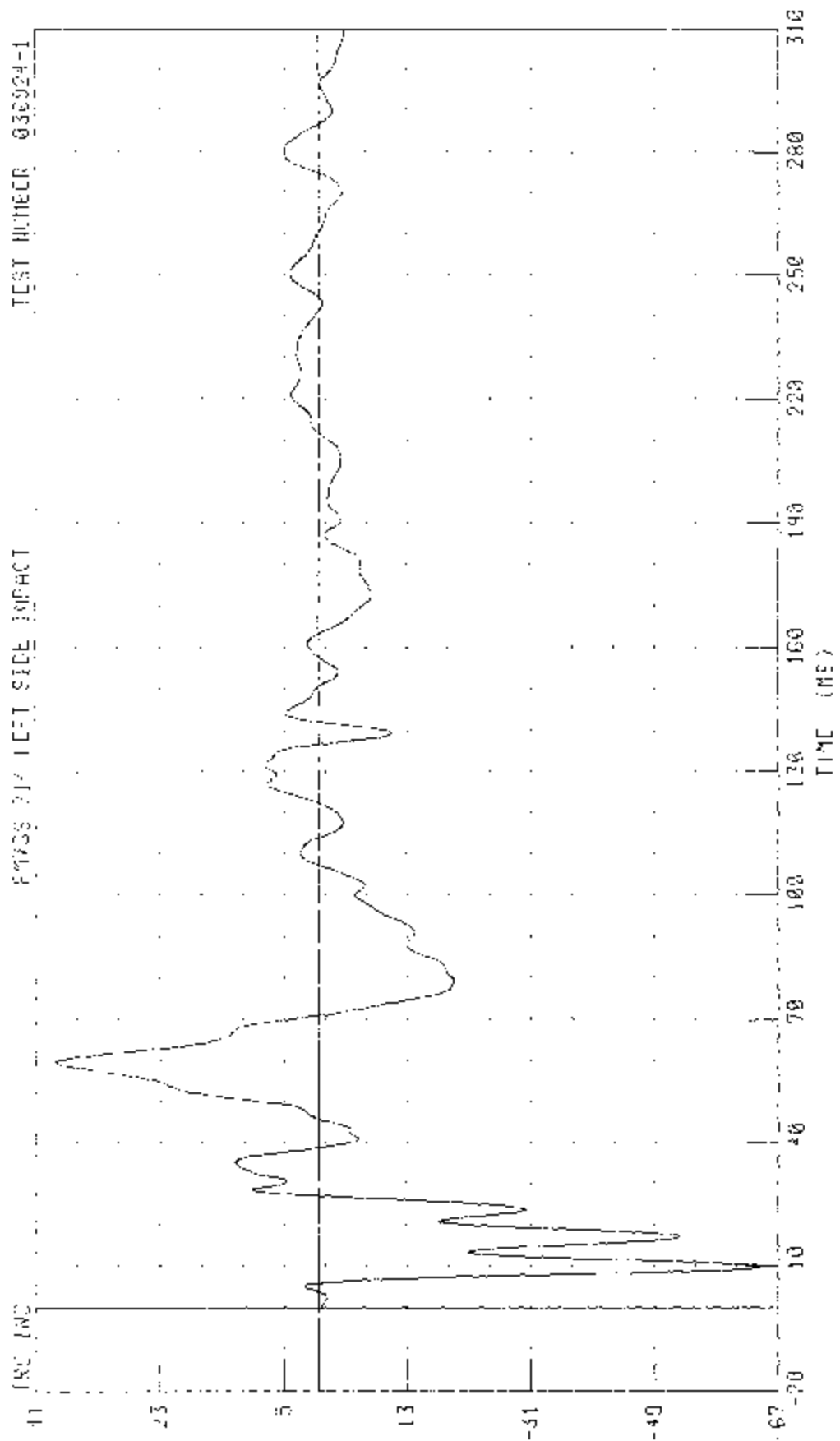
ACCELERATION (G)

55/28 XPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 FORDS EX350

RIGHT SIDE GILLO AT APPROX 5500 X-AXIS POSITION

TEST NUMBER 030924-1

PAGES 217 LEFT SIDE IMPACT



CHANNEL RKXG1 FILTER CH CLASS 00

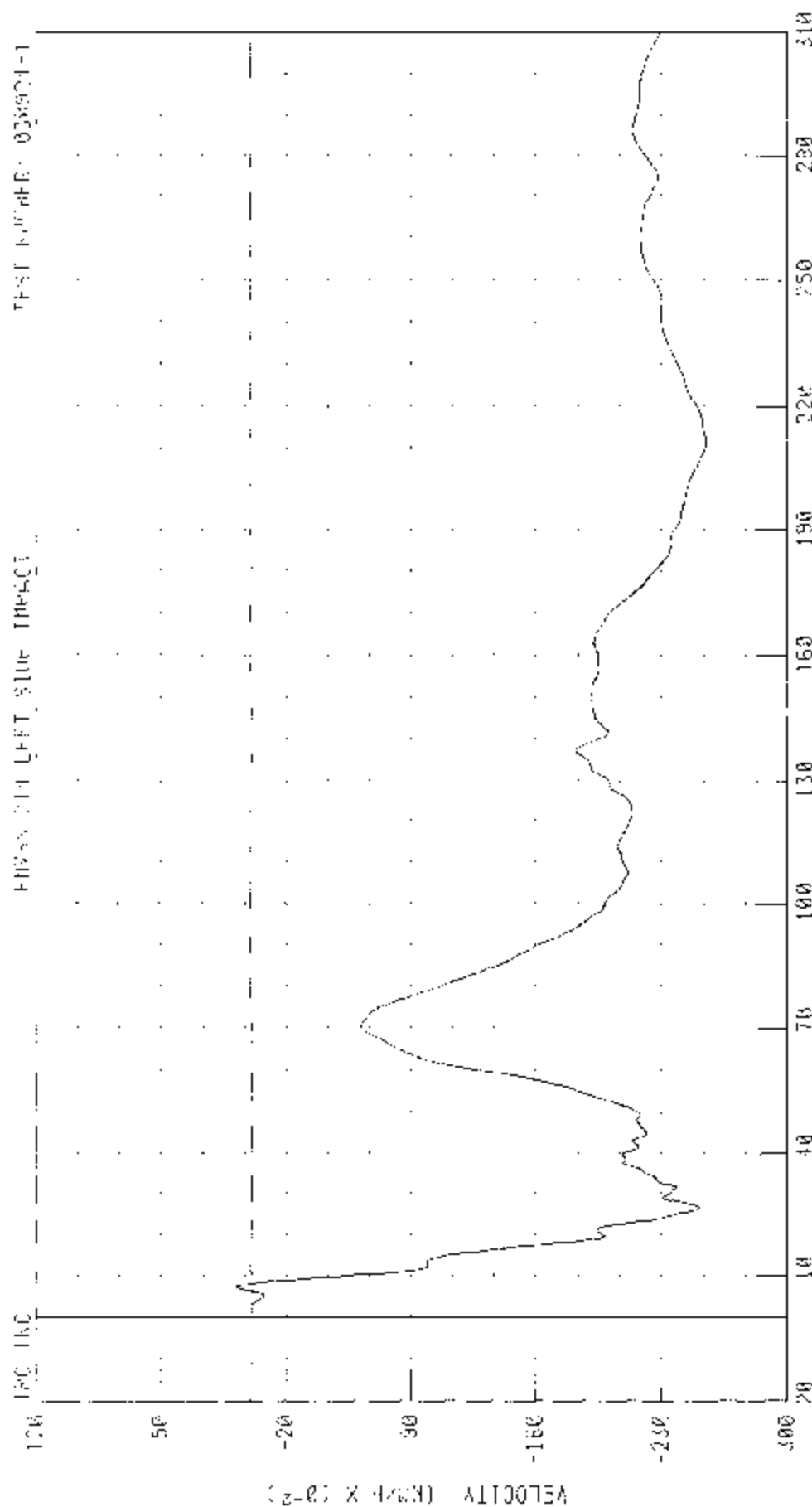
PEAK DATA 5.32 5.8 59.76 MS, -5.47 6.0 5.76 MS

55-28 MPH 50 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

RIGHT SIDE STILL AT PEAR SEAT X AXIS VELOCITY

TEST NUMBER: 038904-1

SENSOR: LH LEFT SIDE IMPACT



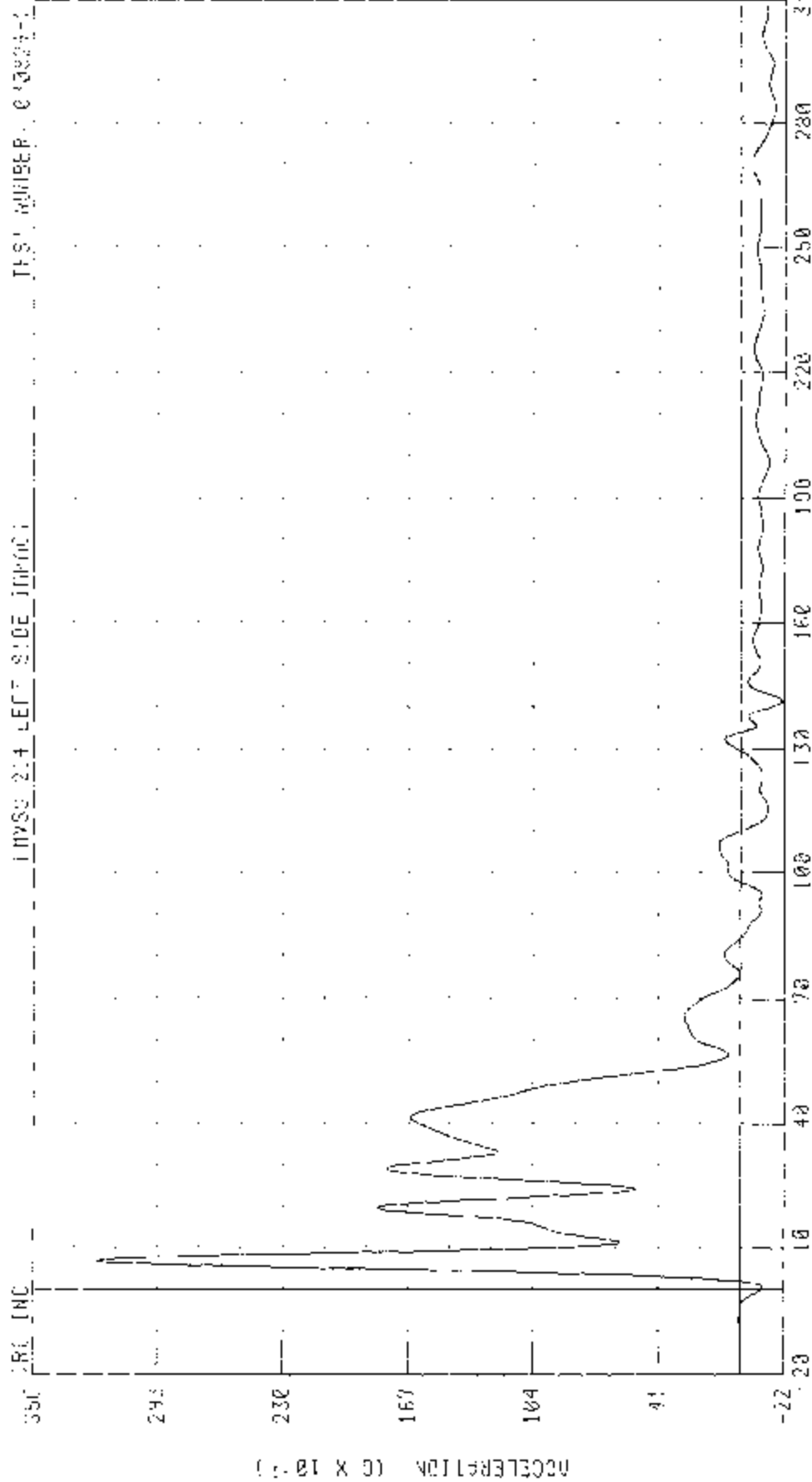
TIME (MS)

CHANNEL: 038904-1 FILTER: CAL CLASS: 150

PERY DATA: 0.00 EPOCH: 7.44 MS, -2.54 AMPL @ 310.92 MS



05/27/98 FRS 50 DEFLECT STOP IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2004 LEXUS RX330  
RIGHT SIDE CURB CUT FOR SENT V OXIS ACCELERATION



CHANNEL RASG61 FI: 15R CH CLASS 80

PEAK DATA 32 38 6 6 80 MS: -2 08 0 0 141 36 MS

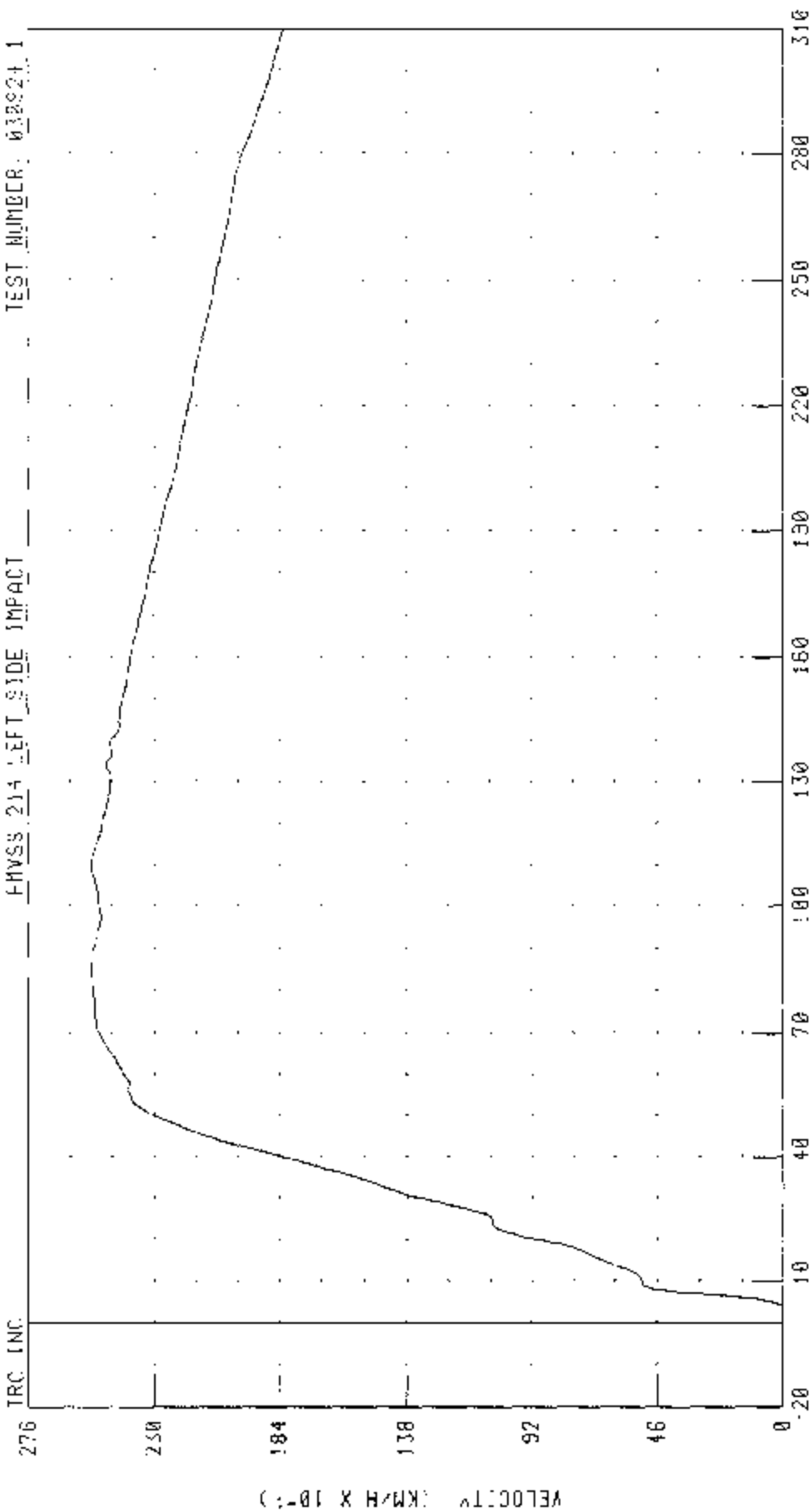
55/23 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

RIGHT SIDE SILL AT REAR SEPT Y-AXIS VELOCITY

TEST NUMBER: 030924-1

FRVSS 214 LEFT SIDE IMPACT

TRC INC

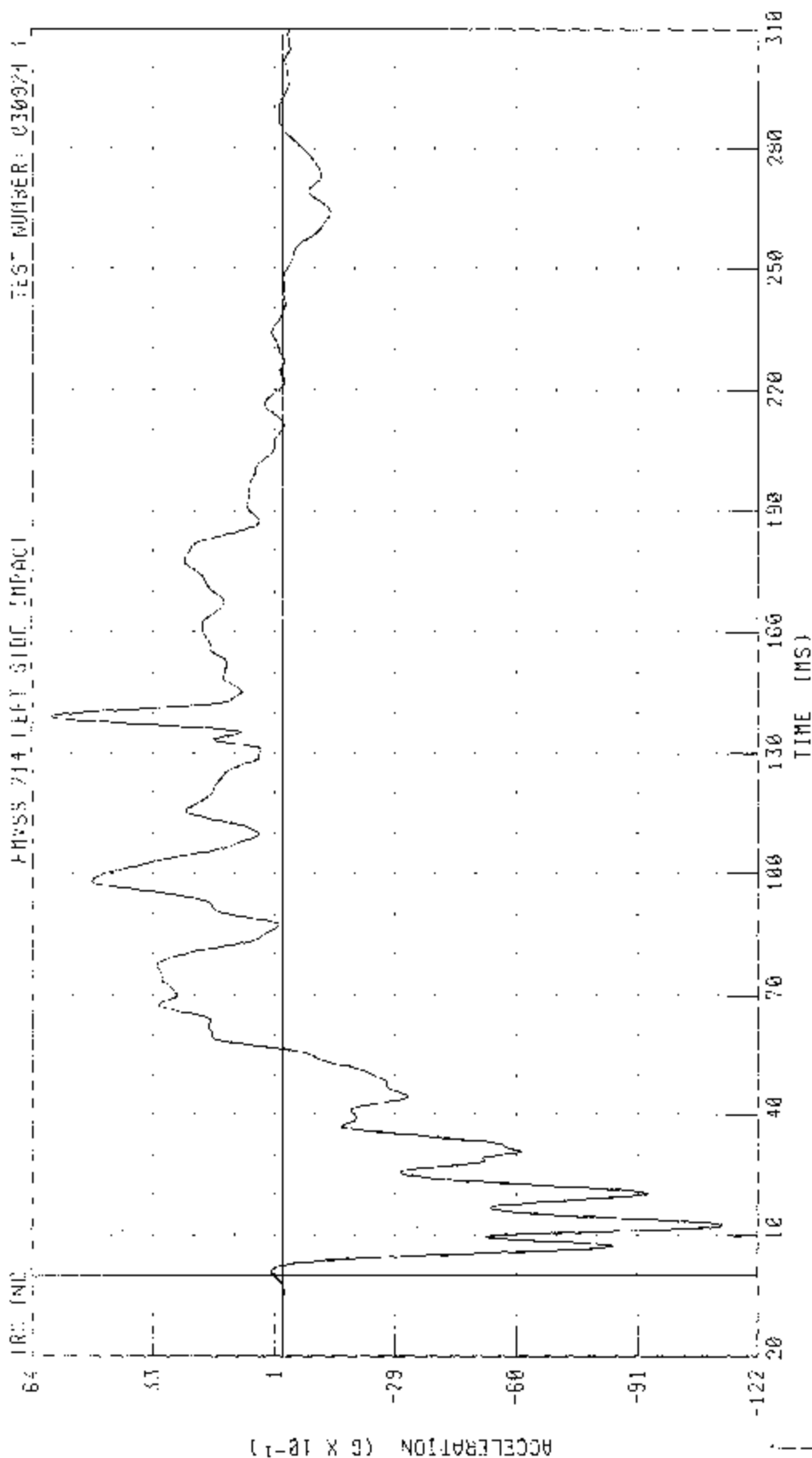


TIME (MS)

CHANNEL: RRSYV1 FILTER: CH CLASS: 120

PEAK DATA: 25 23 KM/H @ 02 00 MS, 0 00 KM/H @ 0 00 MS

35/28 MPH 92 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330  
 RIGHT SIDE SILL AT REAR SEAT 2-AXIS ACCELERATION



PHYS 714 LEFT SIDE IMPACT TEST NUMBER: 030924-1

ACCELERATION (G X 10<sup>-1</sup>)

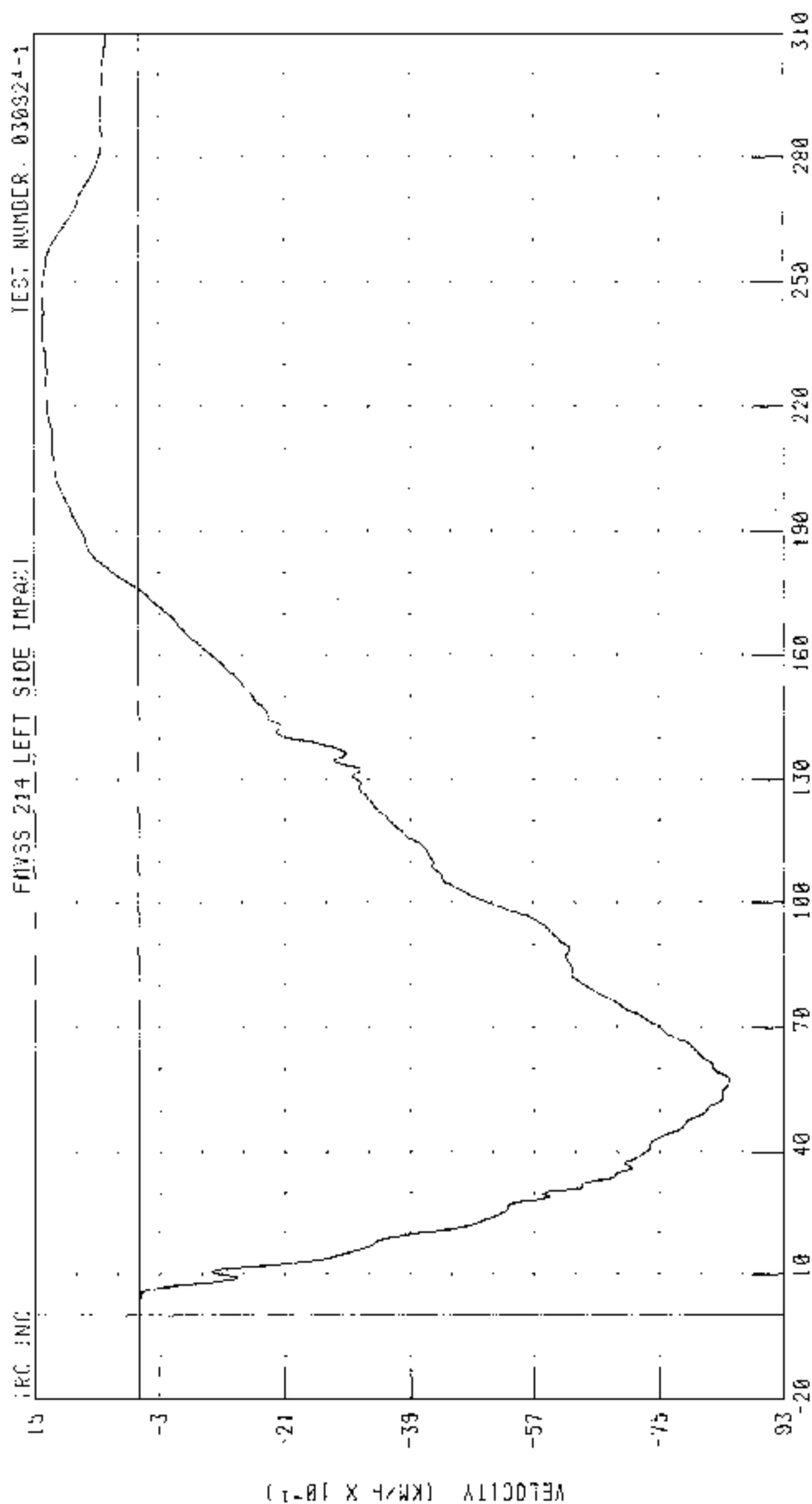
CHANNEL RRSZG1 FILTER CH CLASS 60

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

RIGHT SIDE SILL AT REAR SEAT Z-AXIS VELOCITY

TEST NUMBER: 030924-1

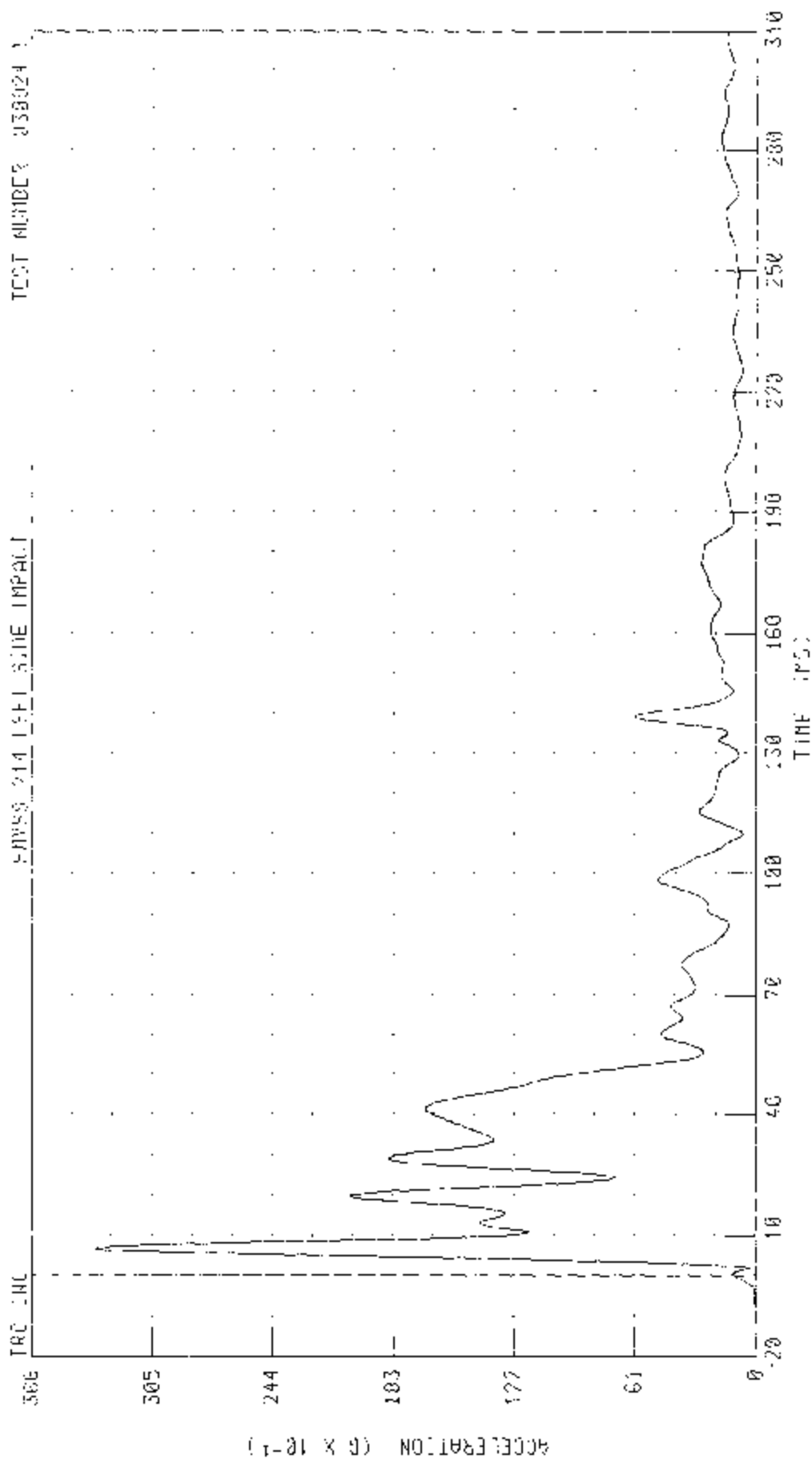
FWVSS 214 LEFT SIDE IMPACT



CHANNEL RRSZV1 FILIER: CH. CLASS 100

PEAK DATA 1 39 KM/H @ 240 16 MS, -8 51 KM/H @ 57 28 MS

55.26 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) AND OFFLOADING OF 2404 LEXUS 52300  
 RIGHT SIDE SHOCK REAR SHOCK SENSOR AND ACCELERATION



CHANNEL RRSR01 FILTER ON CLASS 00

FLAT DATA 53.39 0 0 6.00 MS 0.00 0 9 -2.84 MS

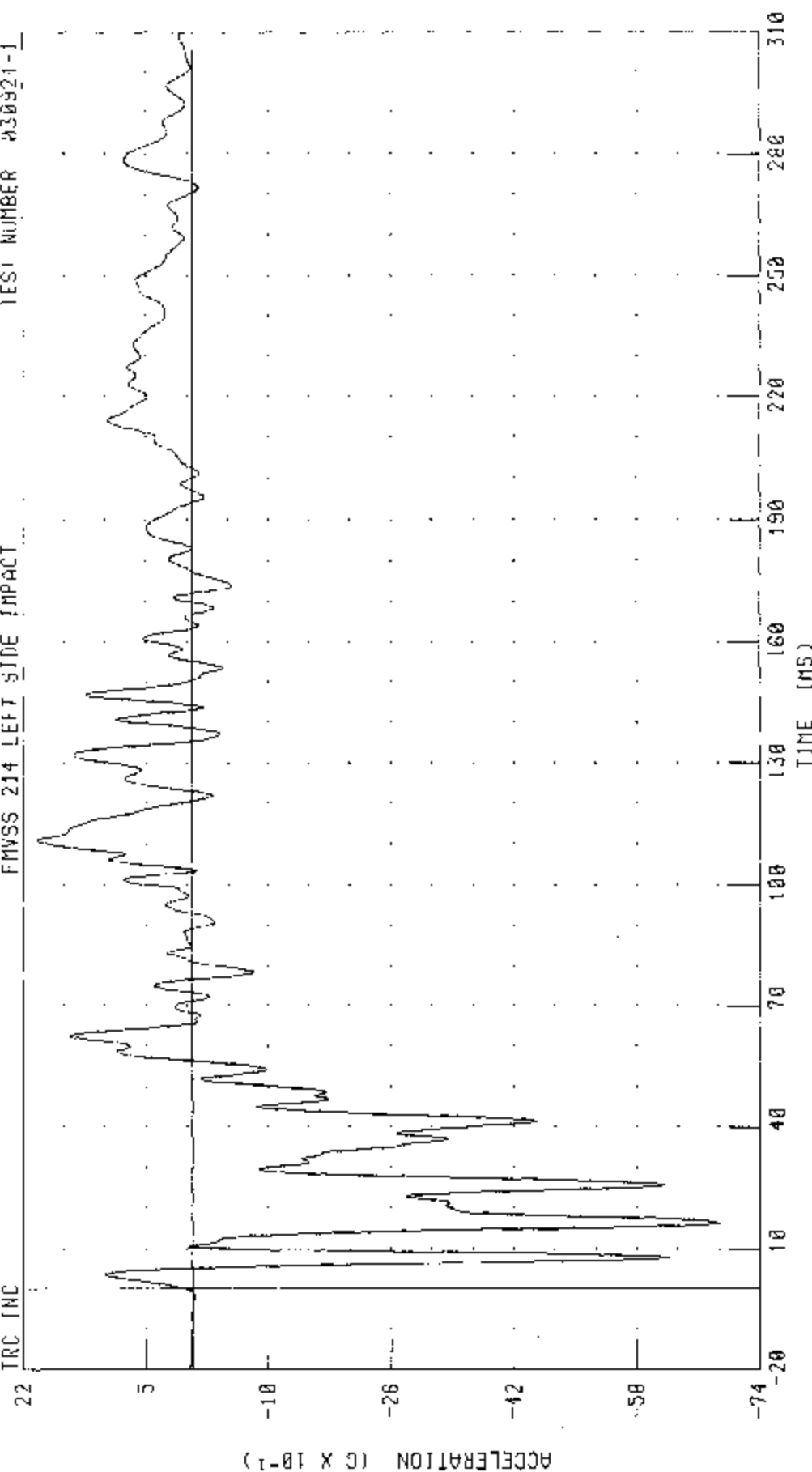
55/23 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

REAR FLOORPAN ABOVE AXLE X-AXIS ACCELERATION

TEST NUMBER 030924-1

FMVSS 214 LEFT SIDE IMPACT

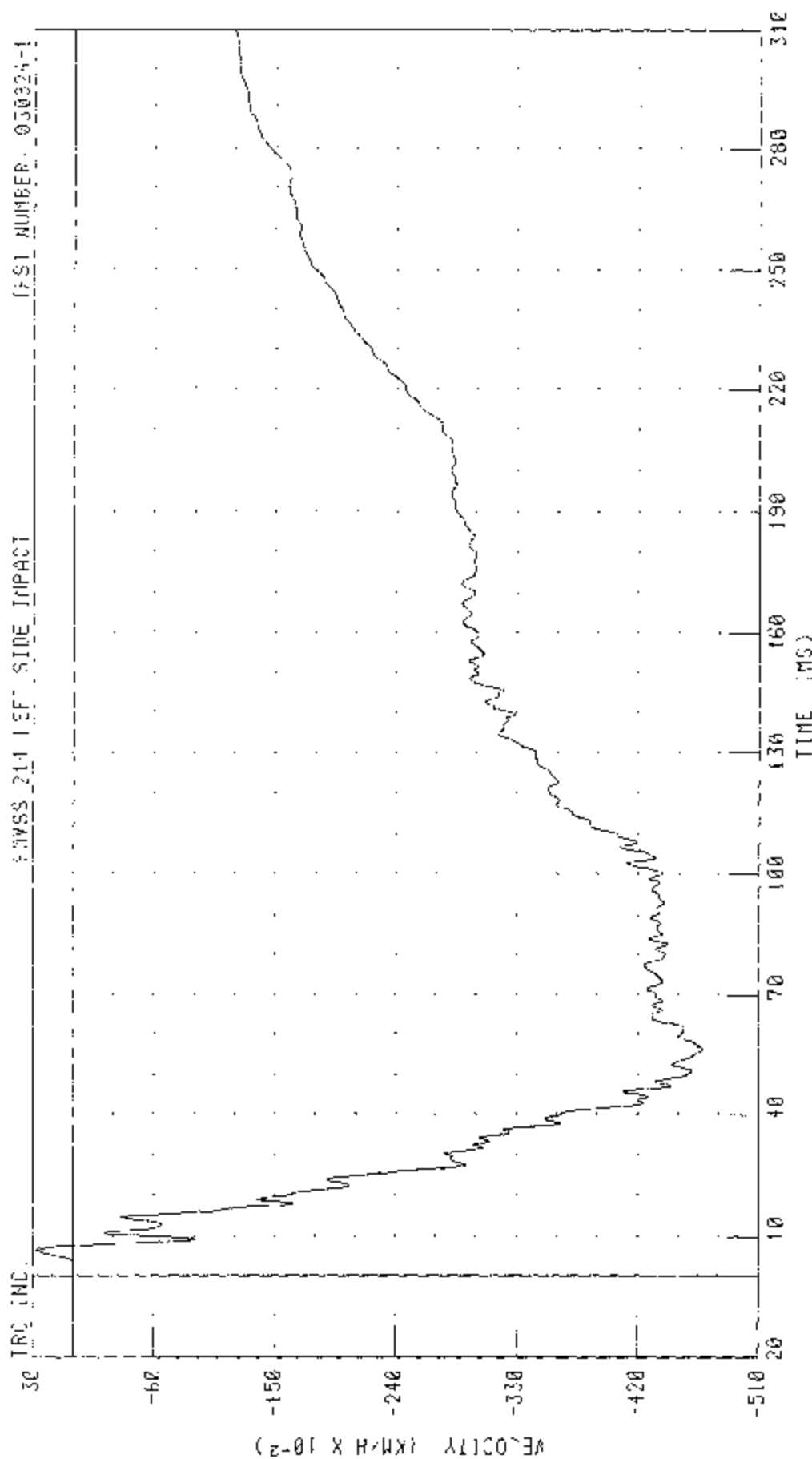
TRC INC



CHANNEL: RDX061 FILTER: CH. CLASS 60

PEAK DATA 2 02 0 0 110 00 MS, -6 88 0 0 16.24 MS

55/28 KM/H 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330  
 REAR FOURWHEEL DRIVE AXLE X-AXIS VELOCITY



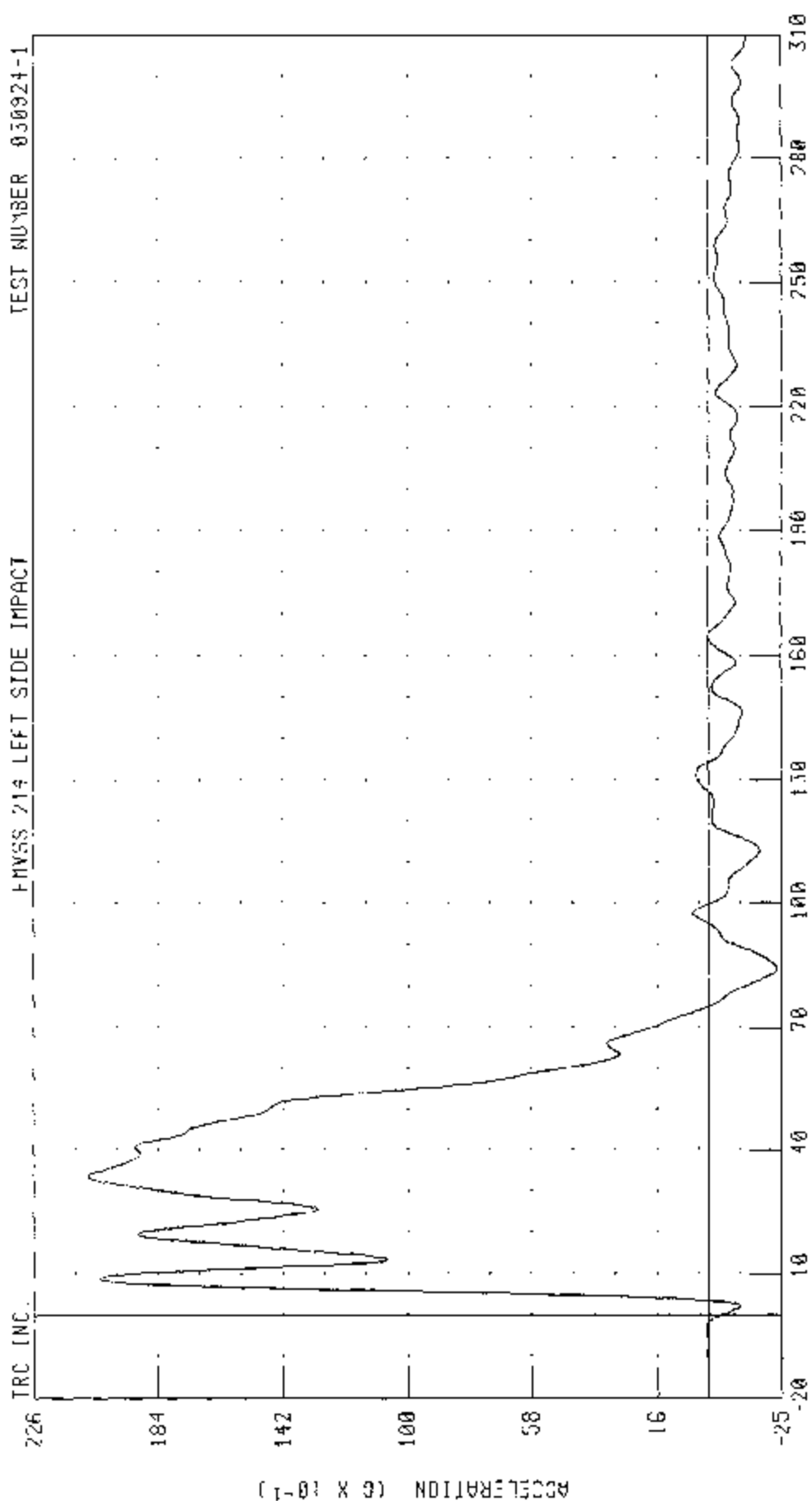
CHANNEL - RDXV1 FILTER CH CLASS 180

PEAK DATA: 0 27 KM/H @ 6 46 MS; -4 68 KM/H @ 56 18 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330  
 REAR FLOORPAN ABOVE AXLE Y-AXIS ACCELERATION

TEST NUMBER 030924-1

FMVSS 214 LEFT SIDE IMPACT



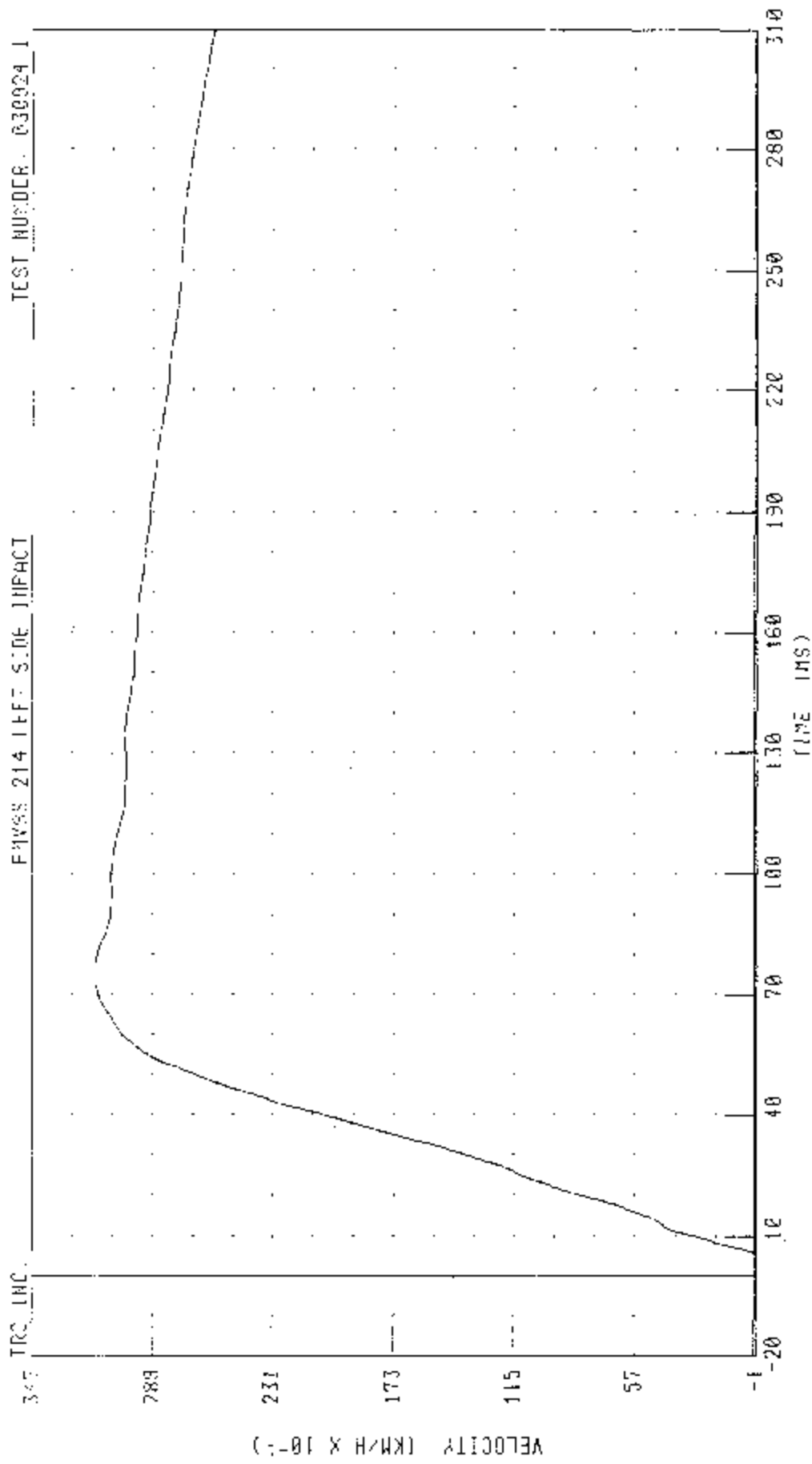
CHANNEL RDKY01 FILTER: CH. CLASS 60

PEAK DATA: 20.87 G @ 33.68 MS, -2.34 G @ 84.24 MS



55/28 KPH 200 HORIZONTAL SIDE IMPACT (MOVING, DEFORMABLE BAR) INTO LEFT SIDE OF 2000+ LEXUS RX330

REAR FLOORPAN ABOVE AXLE Y-AXIS VELOCITY



CHANNEL: RDKYV1 FILTER: 54. CLASS: 180

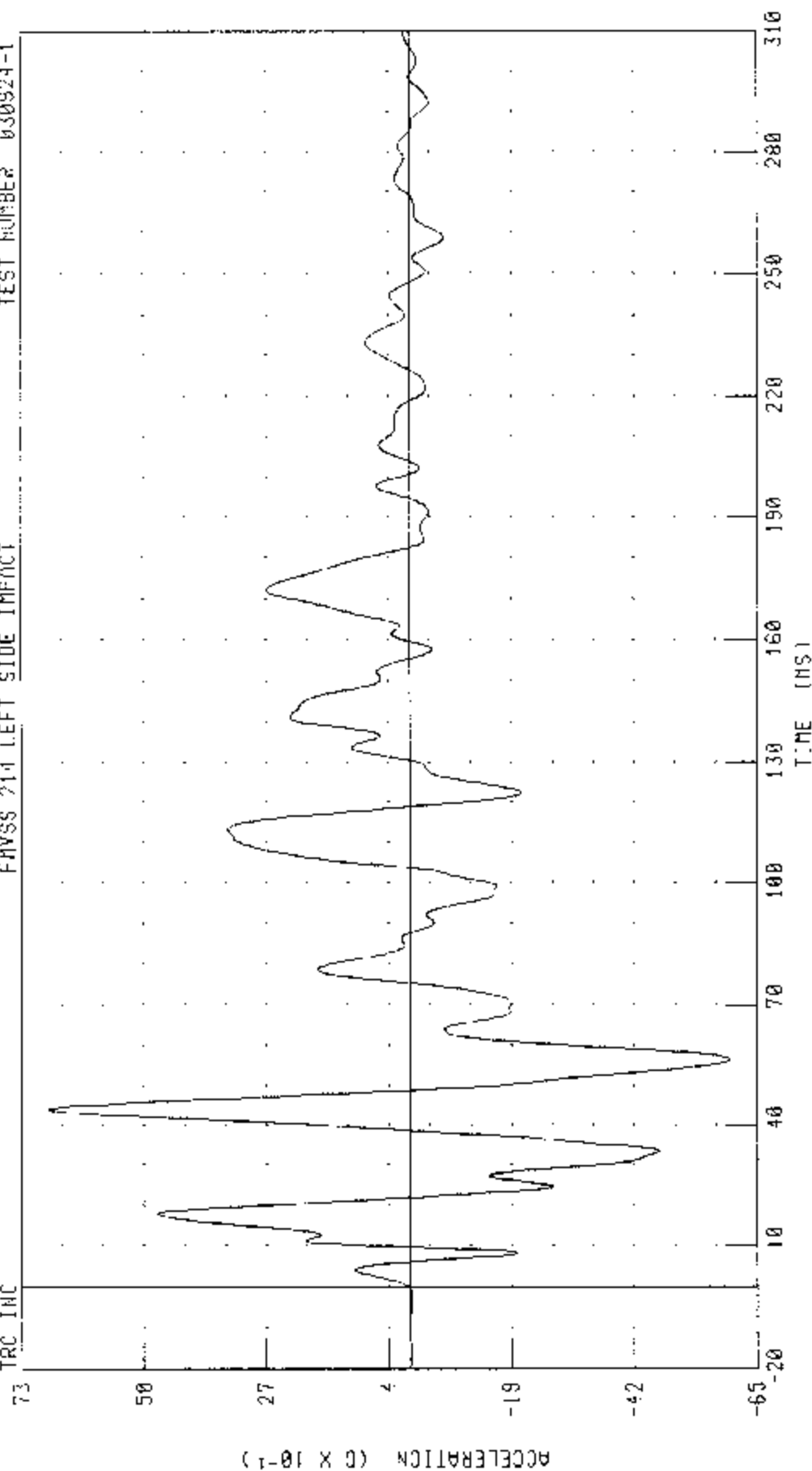
55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

REAR FLOORPAN ABOVE AXLE Z AXIS ACCELERATION

TEST NUMBER 030924-1

FMVSS 214 LEFT SIDE IMPACT

TRC INC



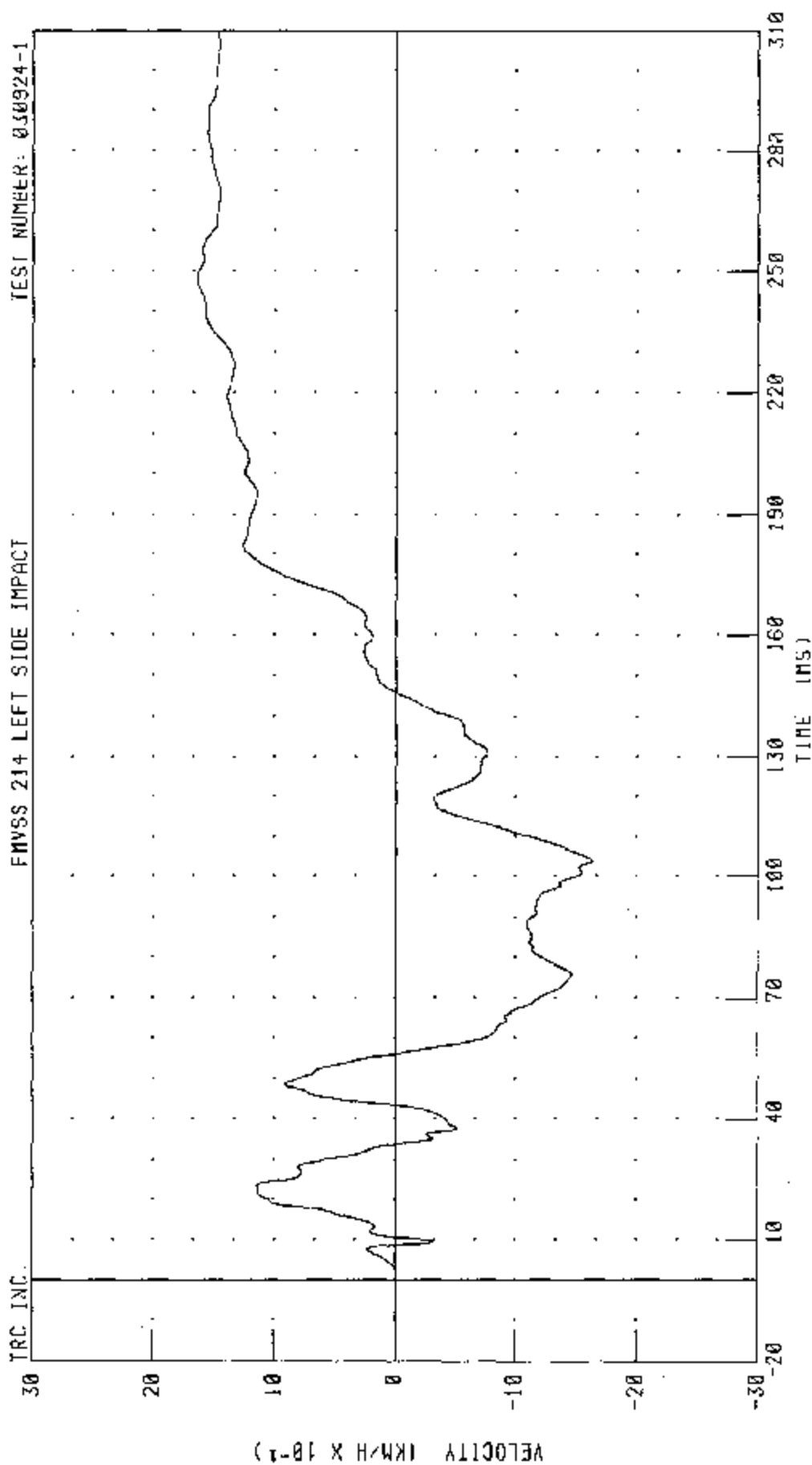
CHANNEL1 RDKZG1 FILTER 34 CLASS 60

PEAK DATA: 6 31 6 0 44 08 MS, -5 99 6 0 56 06 MS

55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2001 LEXUS RX330

REAR FLOORPAN ABOVE AXLE Z-AXIS VELOCITY

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 030924-1



CHANNEL: RDKZV1 FILTER: CH CLASS 180

PEAK DATA: 1.63 KM/H @ 247.68 MS; -1.64 KM/H @ 104.08 MS

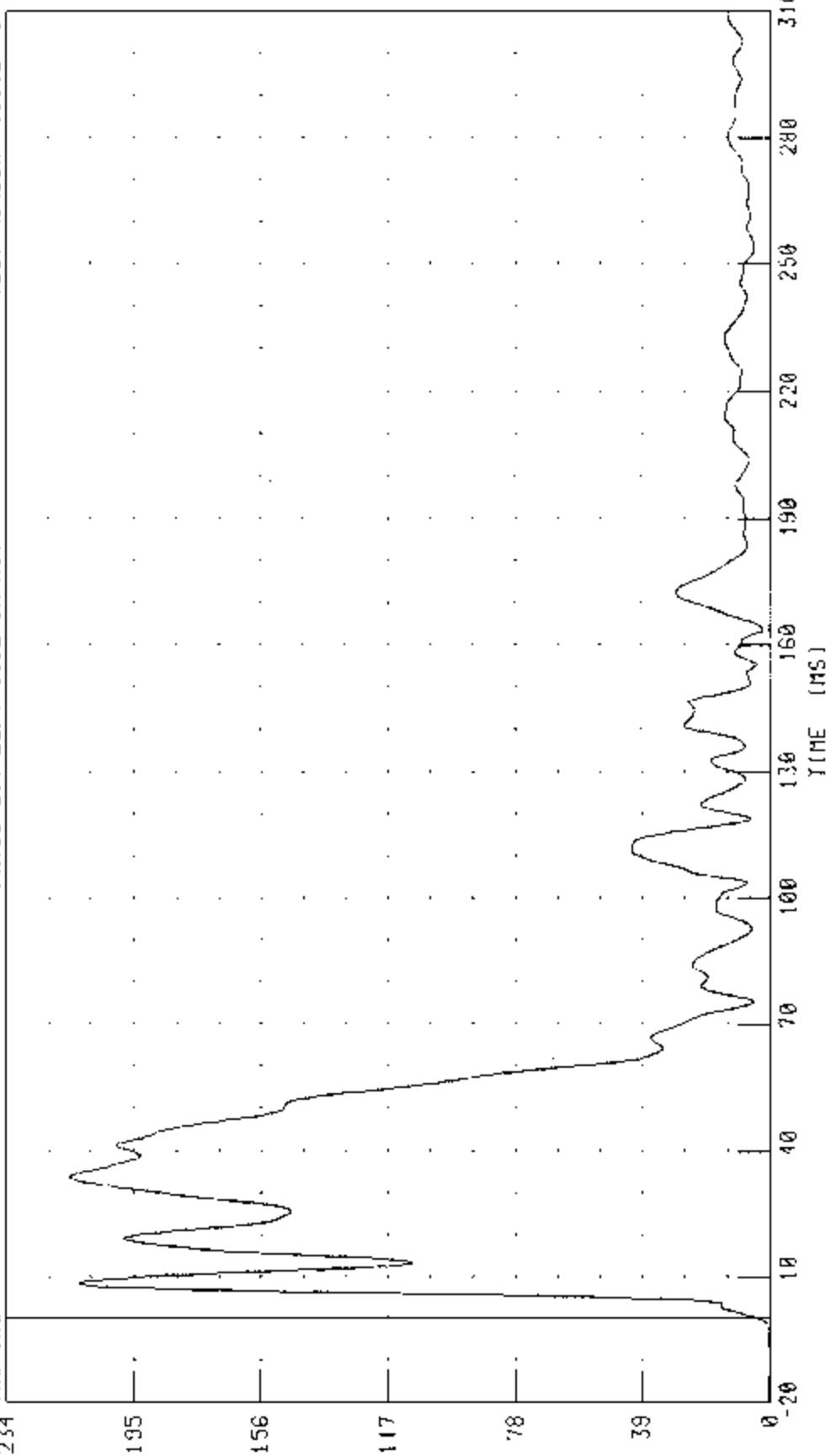
55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION

TEST NUMBER: 030924-1

FMVSS 214 LEFT SIDE IMPACT

TRC INC



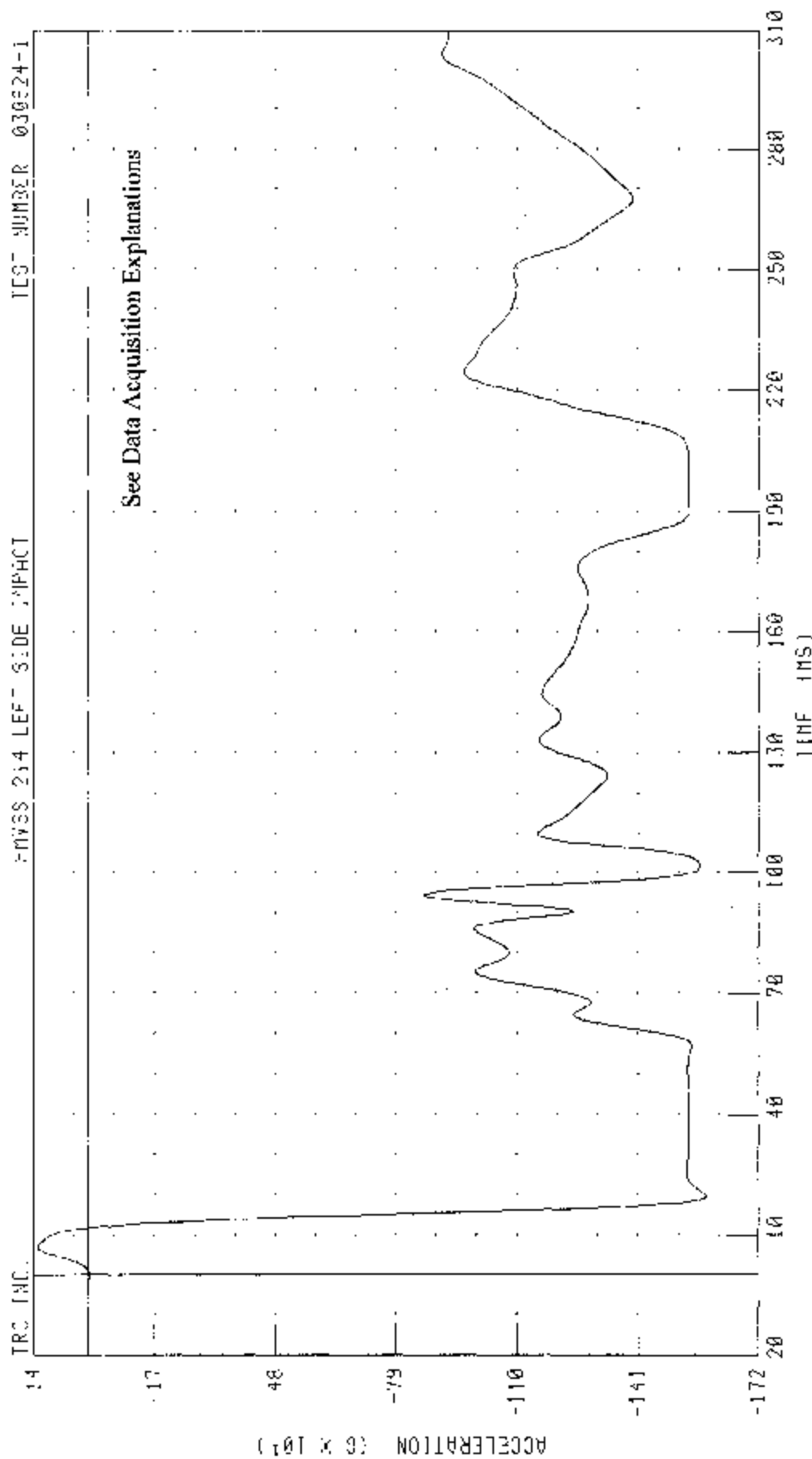
ACCELERATION (G X 10<sup>-1</sup>)

CHANNEL ROKC1 FILTER CH. CLASS 60

PEAK DATA 21 45 G @ 33.66 MS; 0 01 G @ -7 92 MS

35/20 MPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2004 LEXUS RX330A

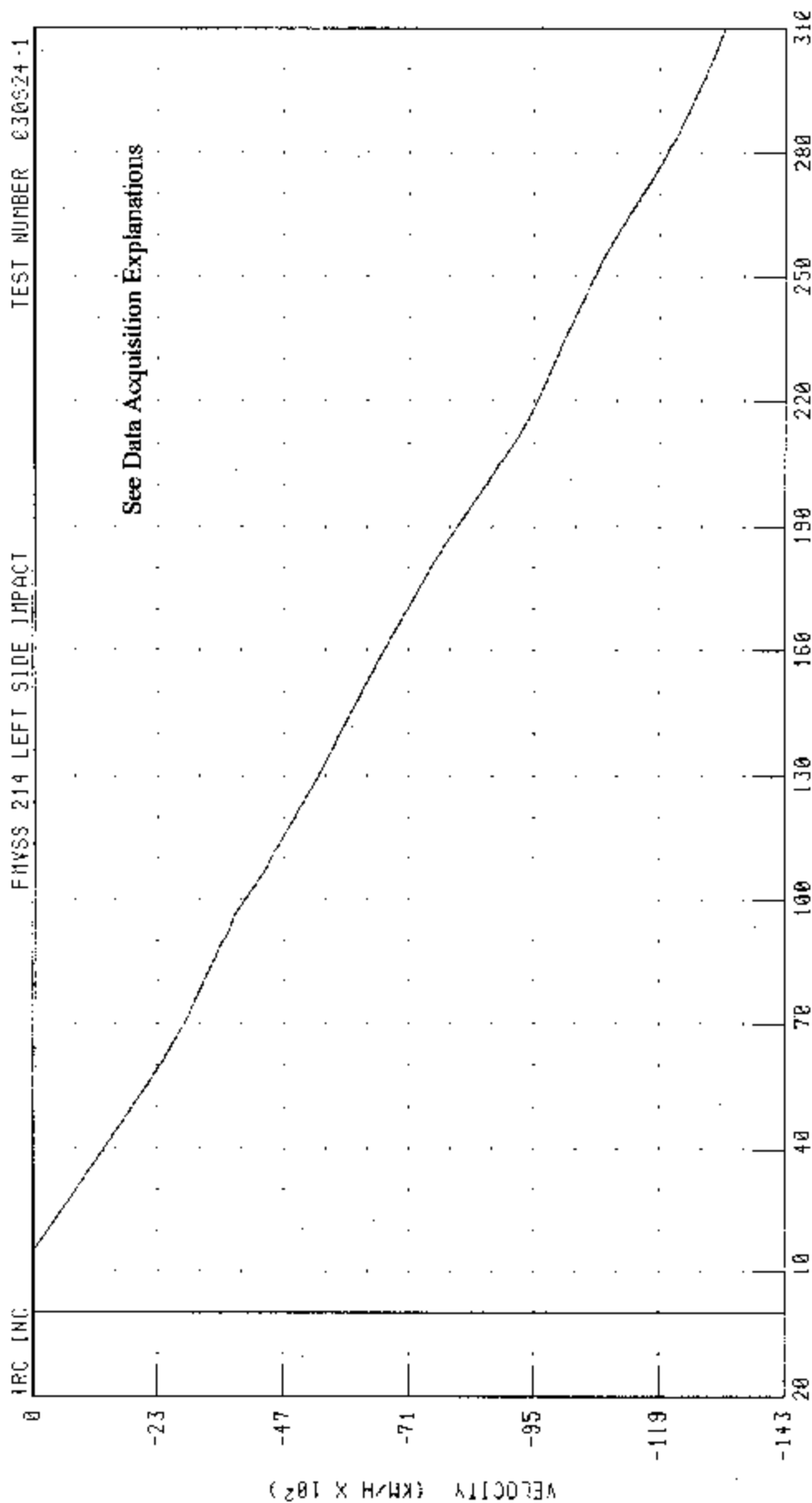
LEFT SIDE GILL AT FRONT SEAT Y-AXIS ACCELERATION



CHANNEL 1: SYG1 FILTER: CH. CLASS 60

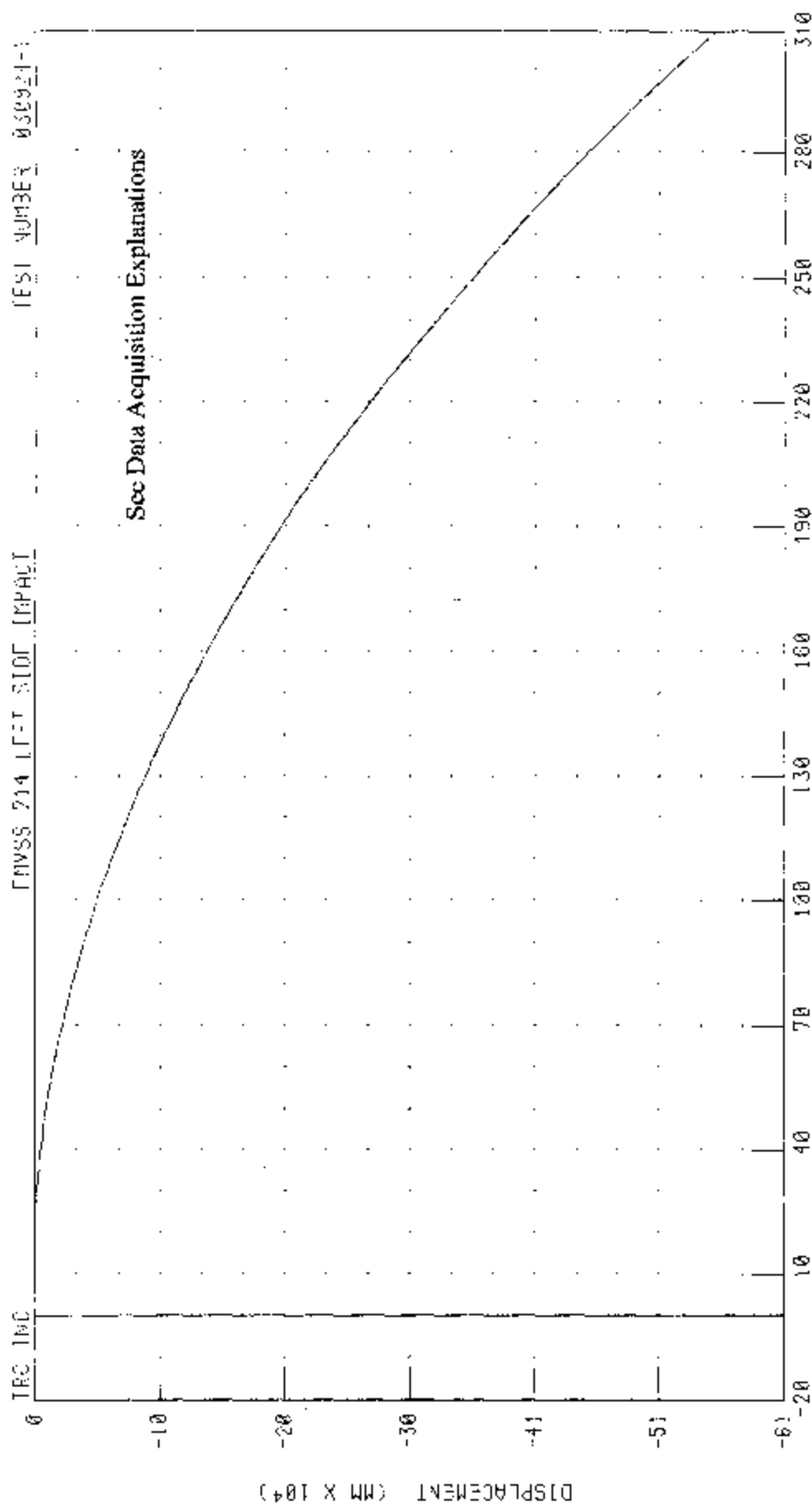
55/26 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 FORD RX33A

LEFT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY



55/28 2PH 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 EXUS RX350

LEFT SIDE SILL AT FRONT SEAT X-AXIS DISPLACEMENT



CHANNEL: LFSYD1 FILTER: CH. CLASS 100 PEAK DATA: 51 04 MM @ 15.36 MS; -562532 44 MM @ 312 00 MS

55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

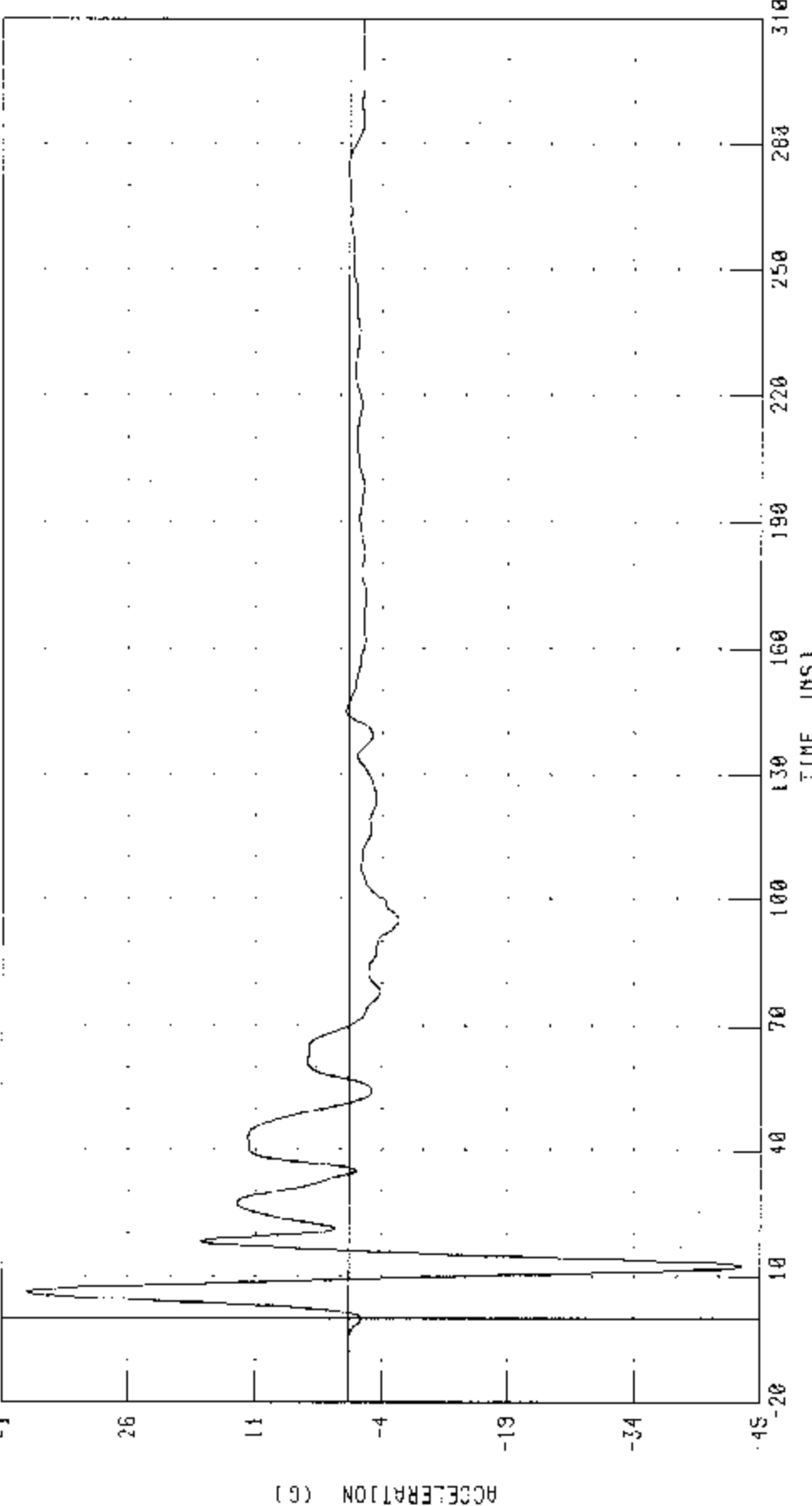
LEFT SIDE STILL AT REAR SEAT Y-AXIS ACCELERATION

TEST NUMBER 030924-1

FMVSS 214 LEFT SIDE IMPACT

TRC INC.

21



CHANNEL: LRSYG1 FILTER: CH CLASS: 60

PEAK DATA: 38.11 G @ 6.16 MS; -46.90 G @ 12.48 MS

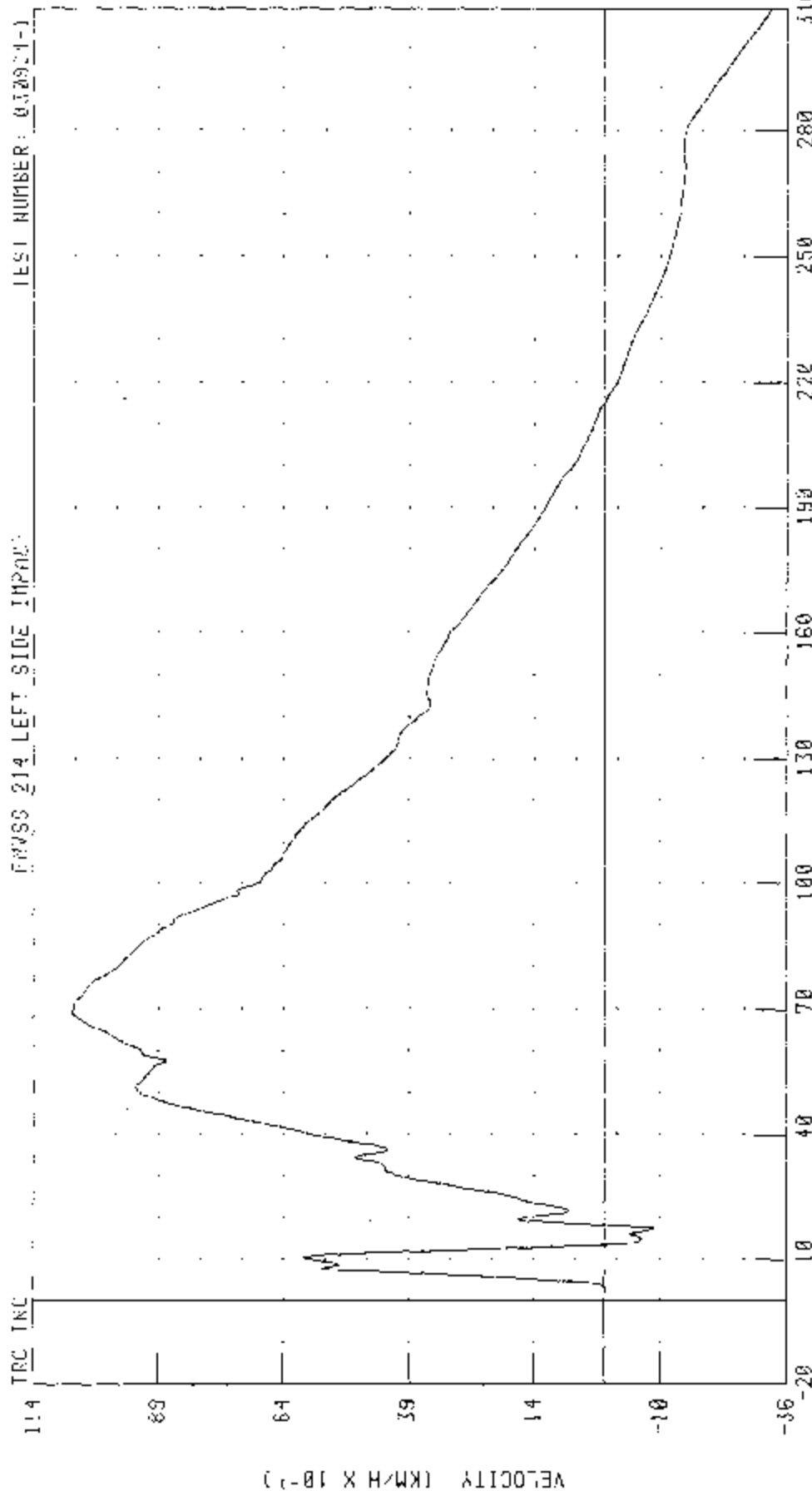


55/25 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT SIDE SILL IN REAR SEAT Y-AXIS VELOCITY

TEST NUMBER: 030924-1

TRC INC



CHANNEL: LKSYV1 FILTER: CH CLASS 180

PEAK DATA 10 62 KM/H @ 28 MS, 3 32 KM/H @ 310 00 MS

55/76 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT SIDE SILL AT REAR SEAT Y-AXIS DISPLACEMENT

TEST NUMBER 030924-1

FMVSS 214 LEFT SIDE IMPACT

INC INC.

506

255

204

153

102

51

0

DISPLACEMENT (MM)

TIME (MS)

310

260

250

220

190

160

130

100

70

40

10

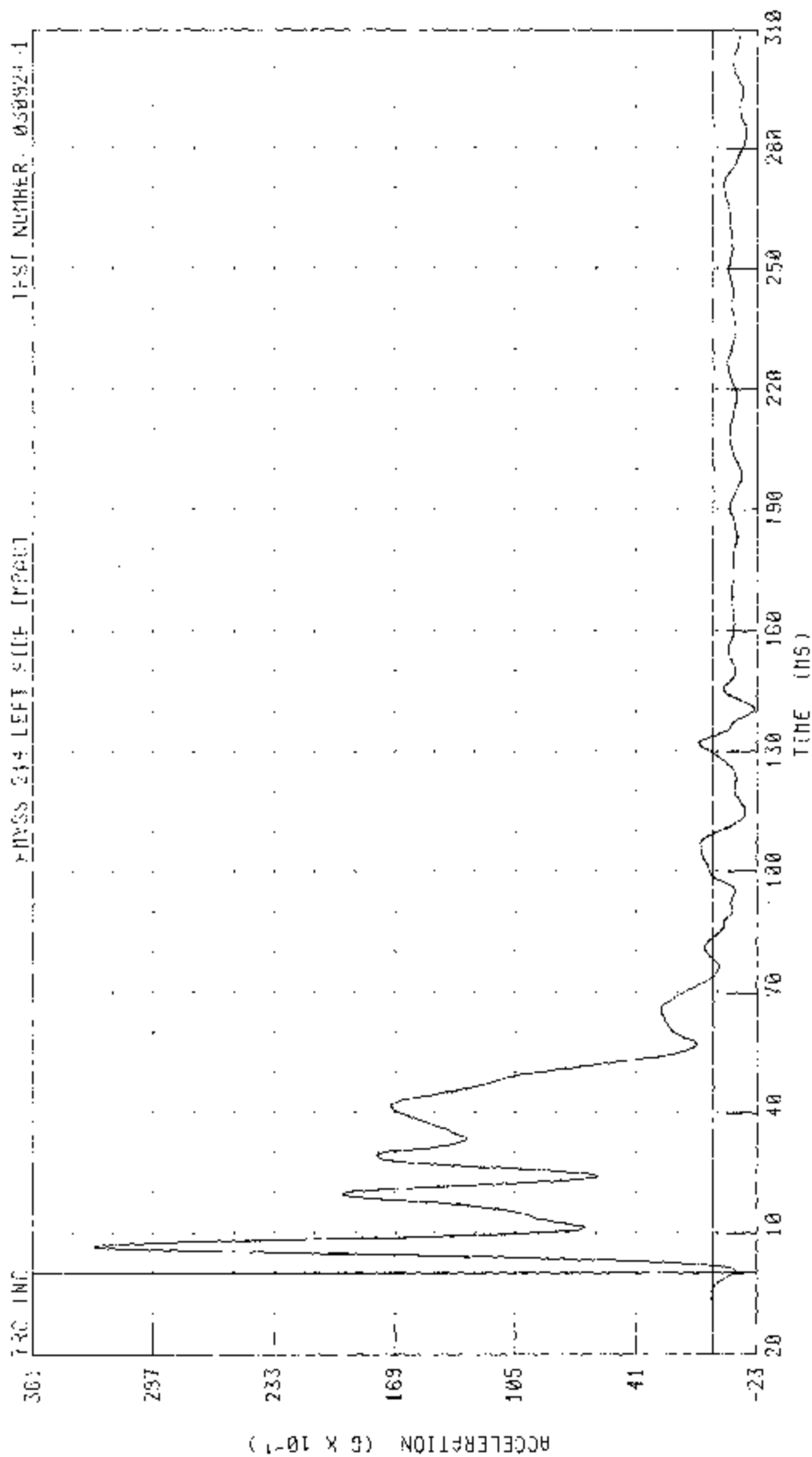
-20

CHANNEL: LRSYD1 FILTER CH CLASS 180

PEAK DATA 278.91 MM @ 215.36 MS; -0.01 MM @ 3.60 MS

55/20 4Pa 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE CARRIER) INTO LEFT SIDE OF 2004 LEXUS RX150

RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS ACCELERATION



CHANNEL: RTYG1 CALIBR: CM CLASS: 90

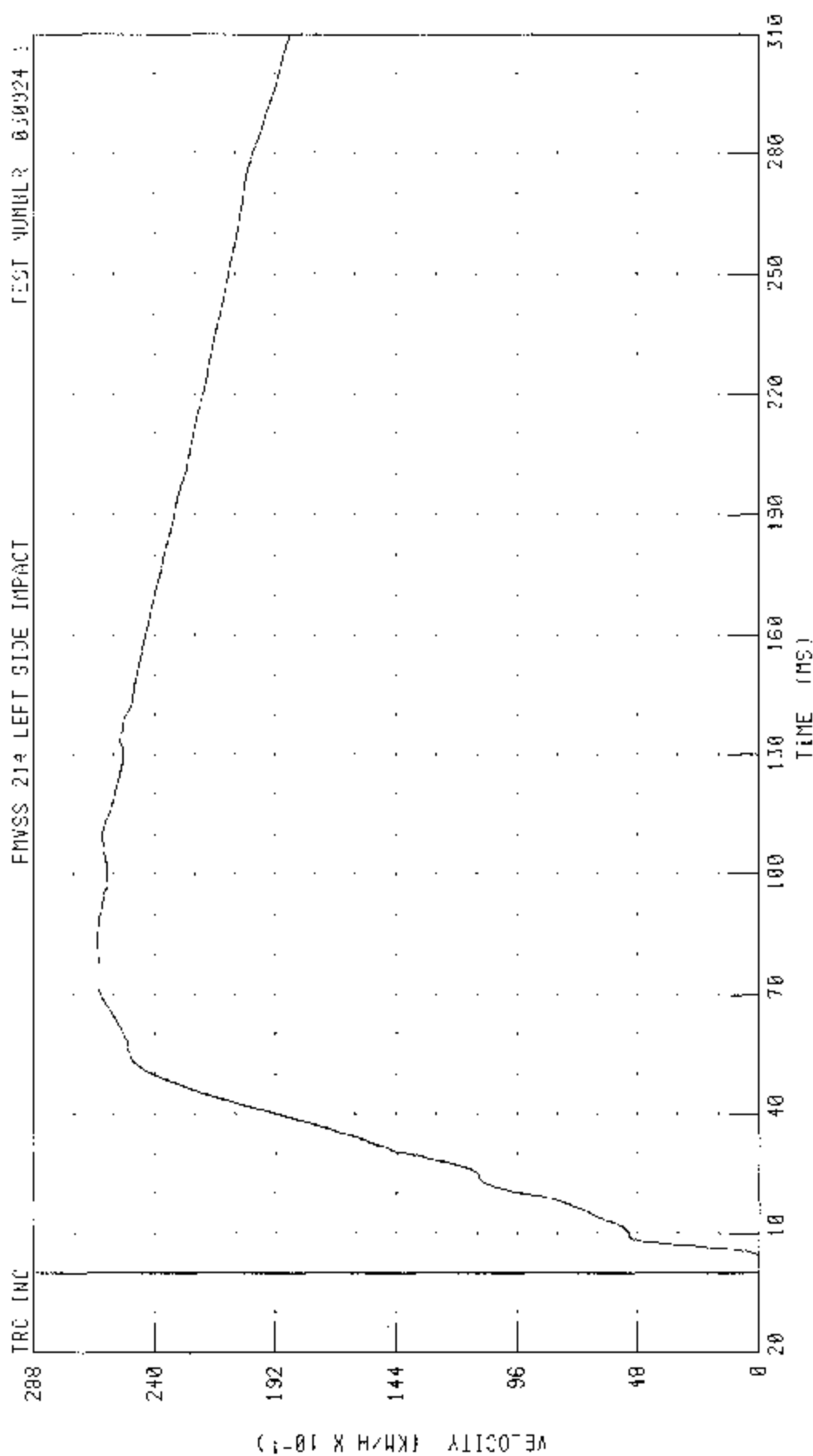
TEST NUMBER: 030924-1

55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS VELOCITY

TEST NUMBER 030924-1

FMVSS 214 LEFT SIDE IMPACT



TIME (MS)

PEAK DATA 26 26 KPH @ 83 04 MS, @ 00 KPH @ 3 28 MS

CHANNEL: RRTV: FILTER CH CLASS 100

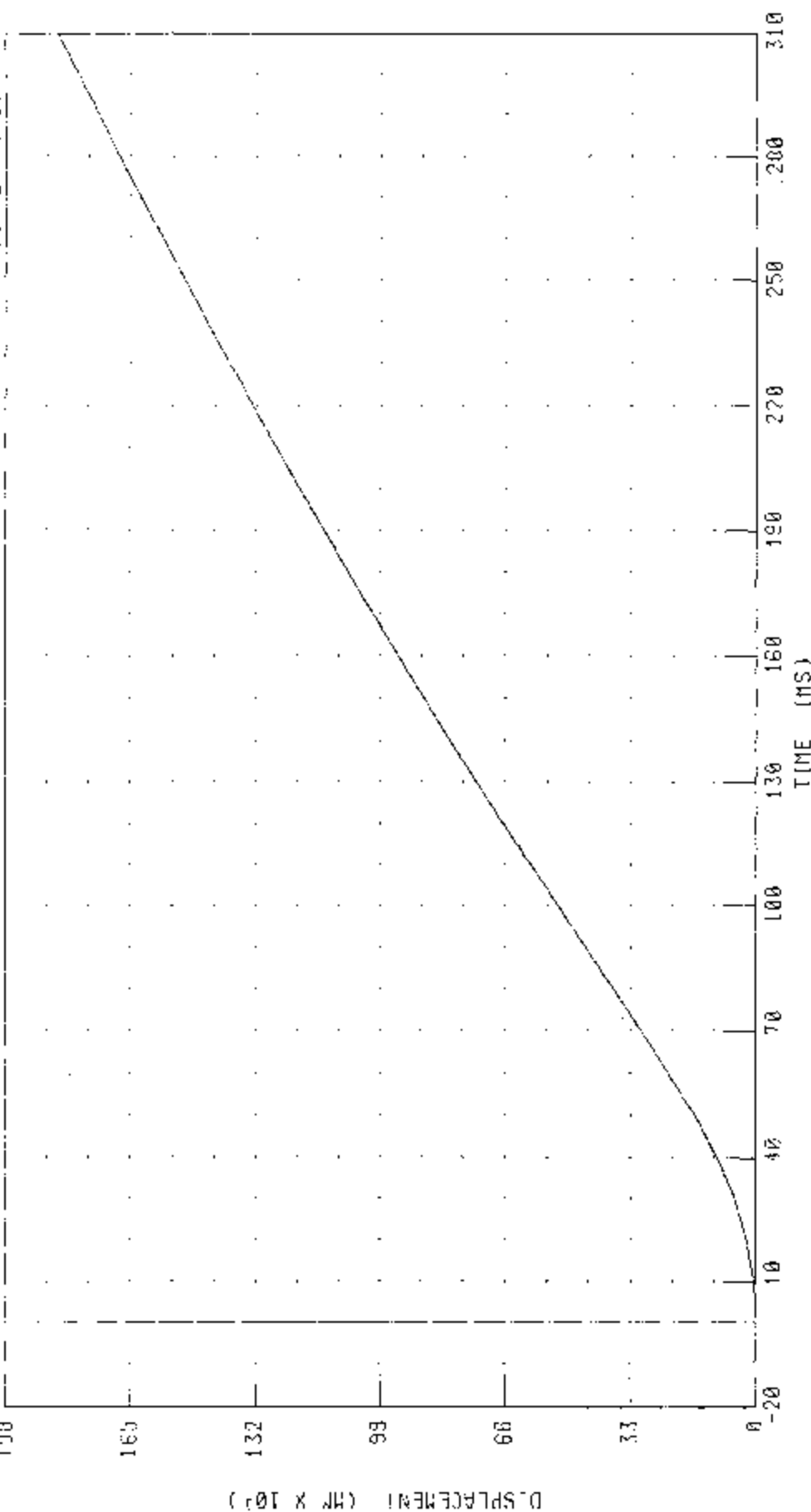
55-26 N°W 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2004 LEXUS RX330

RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS DISPLACEMENT

IFSI NUMBER: 030924-1

CHVSS 214 LEFT SIDE IMPACT

TRC INC



CHANNEL: RRTYD3 FILTER: CH CLASS: 180

PEAK DATA: 1840.52 MM @ 310.00 MS, 0.00 MM @ 0.00 MS

55/26 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 EXUS RX330

LEFT LOWER A-POST Y-AXIS ACCELERATION

TEST NUMBER: 030924-1

ENVSS 214 LEFT SIDE IMPACT

TRC INC.

43

22

1

-20

-41

-62

-83

ACCELERATION (G)

TIME (MS)

312

280

250

220

190

160

130

100

70

40

10

-20

CHANNEL LAYS: FILTER: CH CLASS 60

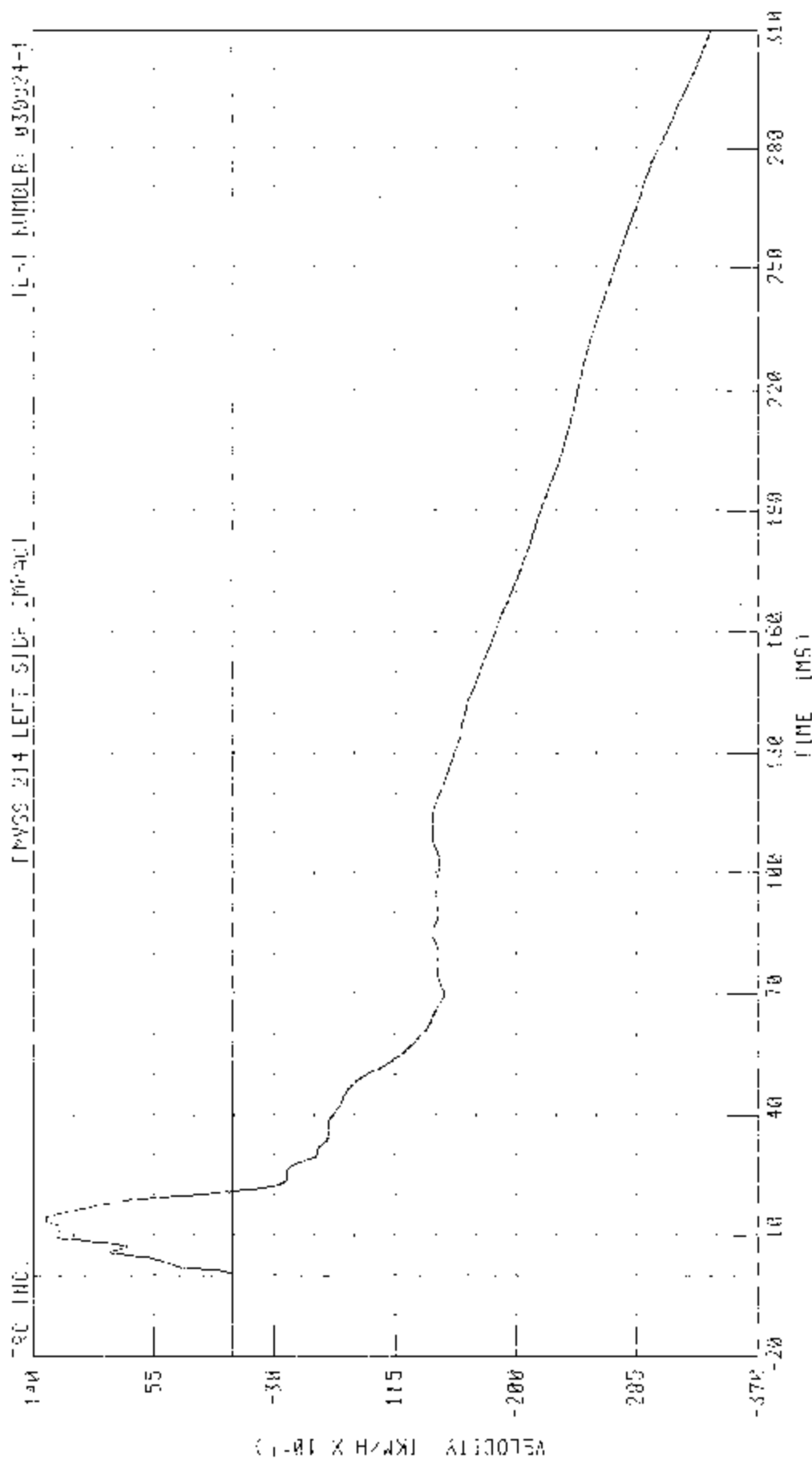
PLAK DATA: 39 99 G @ 2 24 MS, -76 55 G @ 19 92 MS

05/20 ZPH: 00 DEGREE SLUG IMPACT MOVING DEFORMABLE BARRIER: INTO LEFT SIDE OF ROAD EXUS RX330

LEFT LOWER POST Y AXIS VELOCITY

IMPSS 214 LEFT SIDE IMPACT

FILE NUMBER: 030924-1



TIME (MS)

CHANNEL: LCH21 FILTER: CH. CLASS: 100 PEAK DATA: 17 KPH @ 14 00 MS, -33 72 KPH @ 310 00 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 FORD FOCUS RX350

LEFT MIDDLE & POST Y-AXIS ACCELERATION

TEST NUMBER 030924-1

FMVSS 214 LEFT SIDE IMPACT

TRC INC.

62

50

30

20

10

0

-10

ACCELERATION (G)

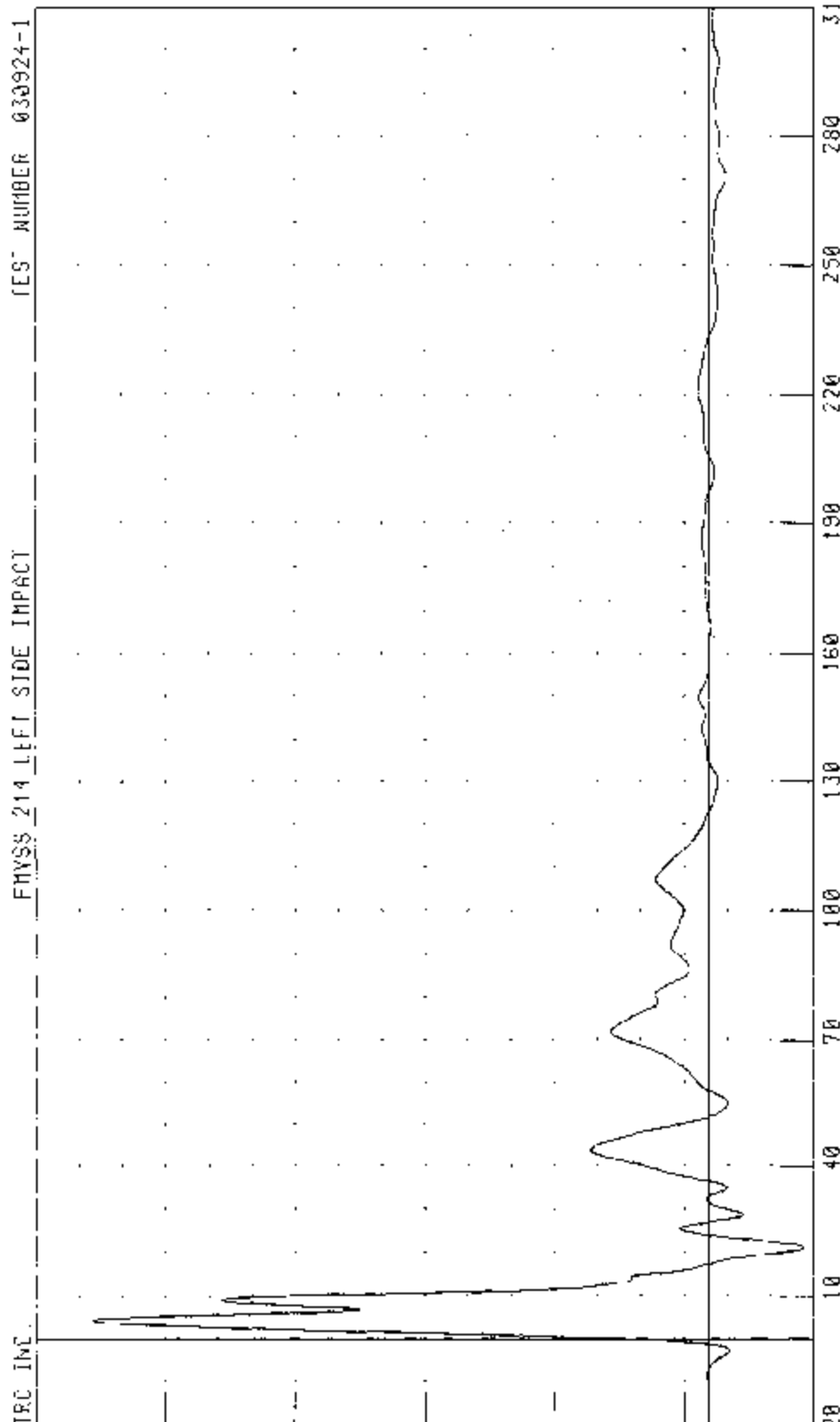
B-122

030924-1

CHANNEL: LIMPYC1 FILTER: CH CLASS: 50

TIME (MS)

PEAK DATA: 57 MS, 0.4 G, -8.8 G, 21.20 MS

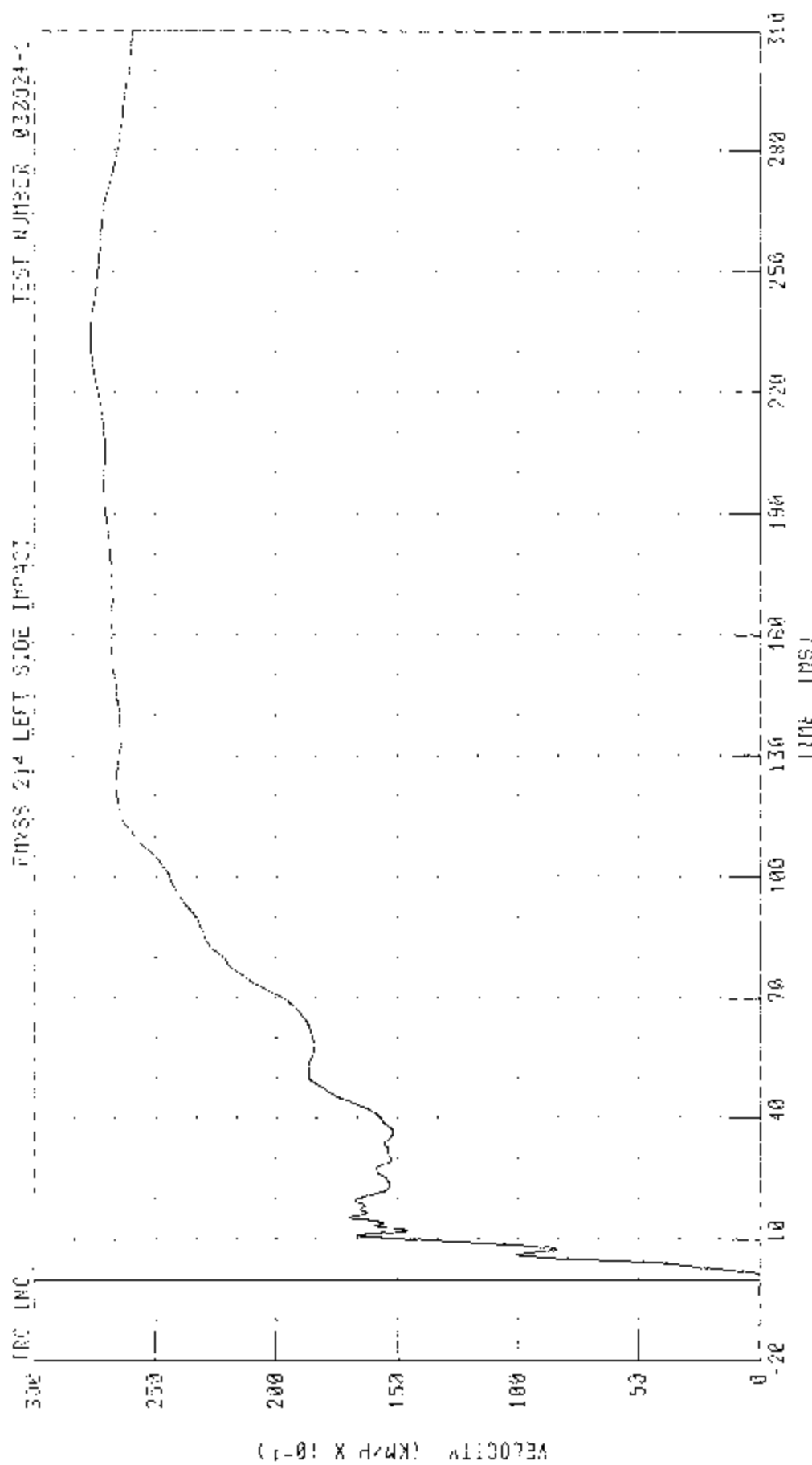




5/23 02H 00 GROSS SIDE IMPACT MOVING INFLECTOR + BARRIER: INTO LEFT SIDE OF 2004 FORD EX332

LEFT BUZZLE 0-POST Y AXIS VELOCITY

PHYS 214 LEFT SIDE IMPACT TEST NUMBER 032024-1

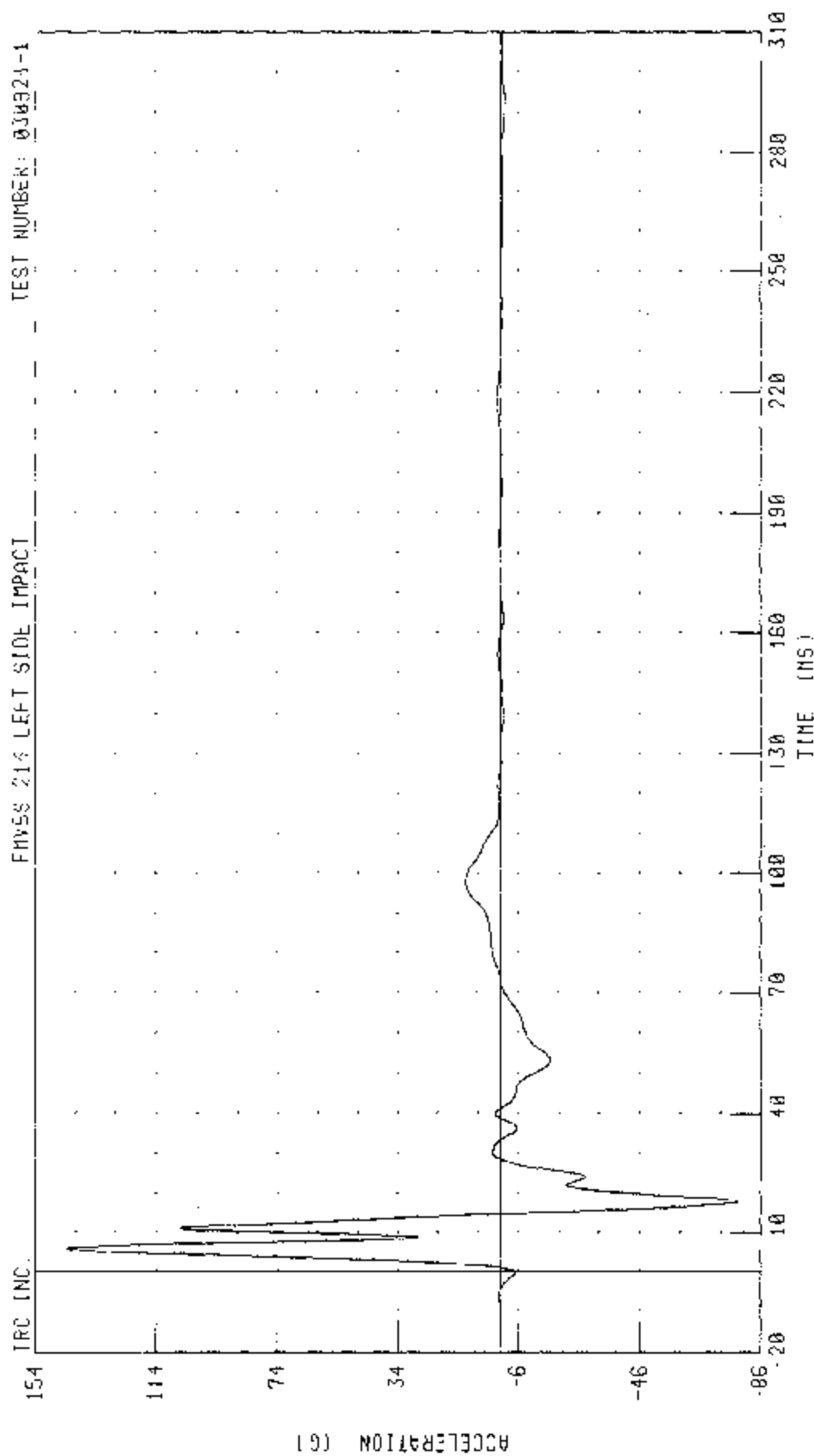


CHANNEL: LMHYV1 FILTER: CH CLASS 120 PEAK DATA 27.66 KM/H @ 234.00 MS, -0.06 KM/H @ 0.00 MS

55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT LOWER B-POST V-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 030924-1



CHANNEL: LLBYG1 FILTER: CH CLASS: 60

PEAK DATA: 143.64 G @ 5.92 MS, -78.34 G @ 18.00 MS

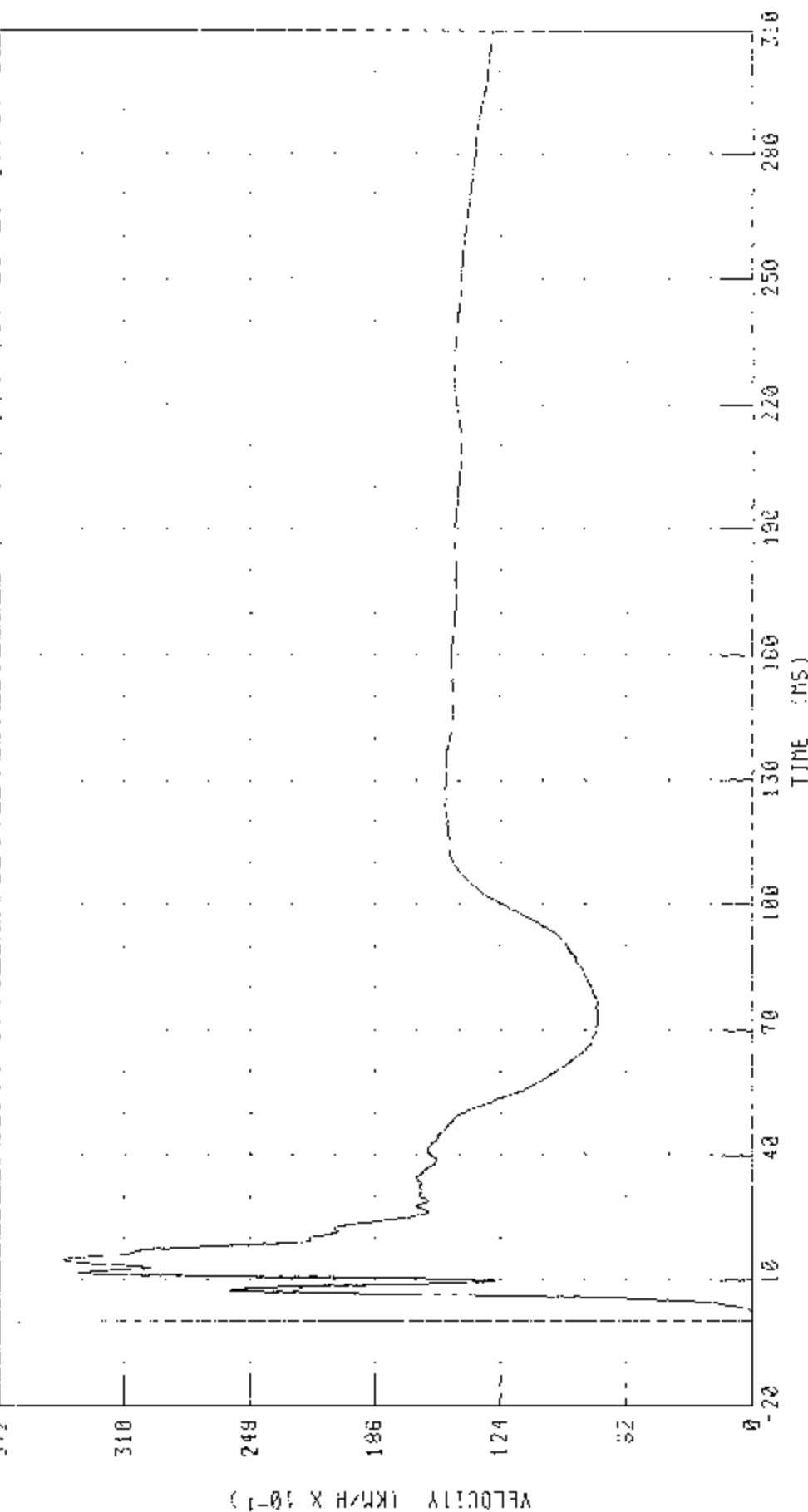
05/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2024 LEXUS RX350

LEA) LOWER O-POST Y AXIS VELOCITY

PLVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030924-1

TRC 140



TIME (MS)

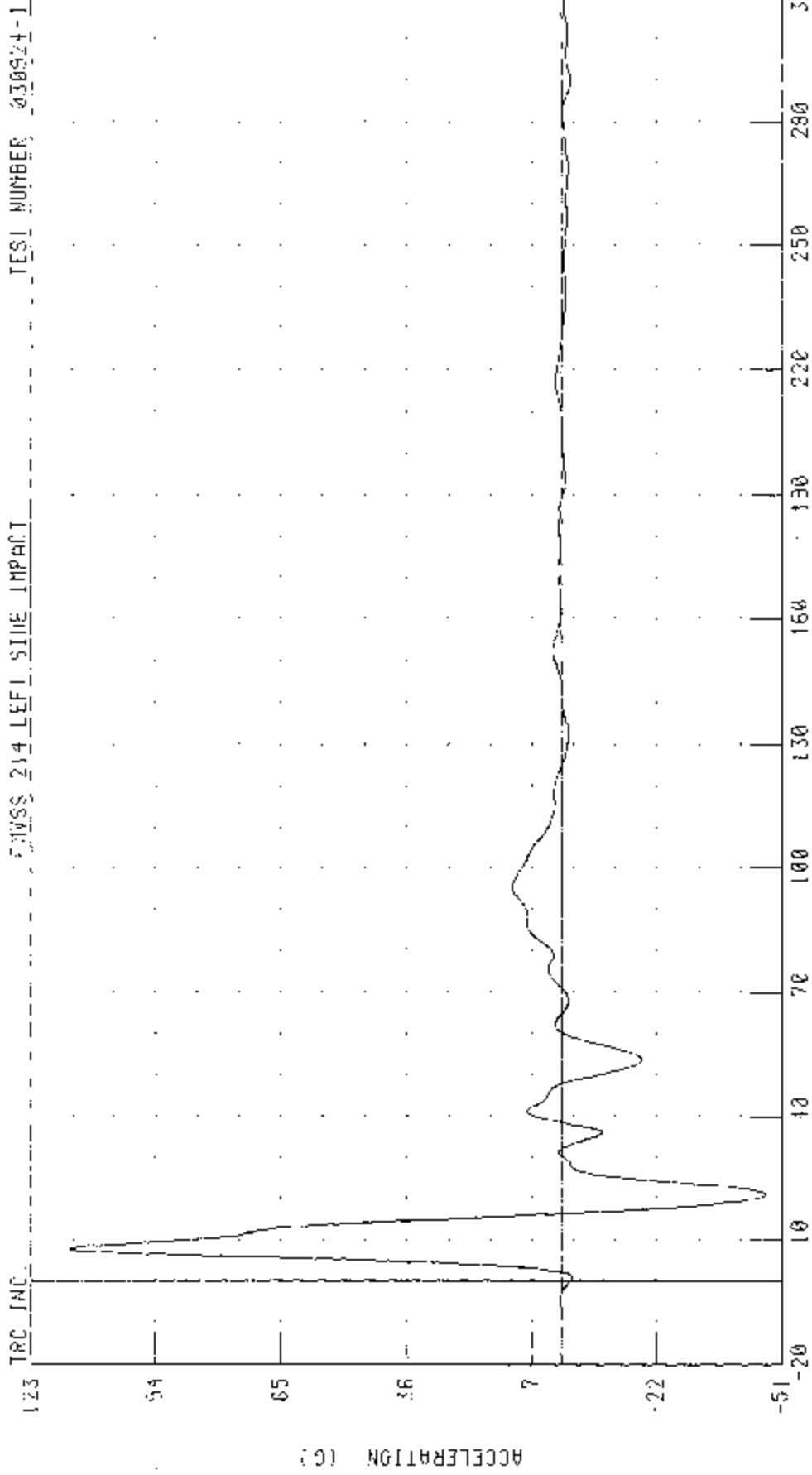
CHANNEL LLEV2 FILTER CH CLASS 190

PEAK DATA 34 06 KPH @ 14 58 MS, -3 01 KPH @ 1 94 MS

55 MPH 90 DEGREE STOP IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT MIDDLE B-PUS" Y AXIS ACCELERATION

TRC INC. MASS 214 LEFT SIDE IMPACT TEST NUMBER 030924-1



CHANNEL: LF8Y61 FILTER: CH CLASS: S2 PEAK DATA 114 21 0 7 97 MS, -47 27 0 0 20 72 MS

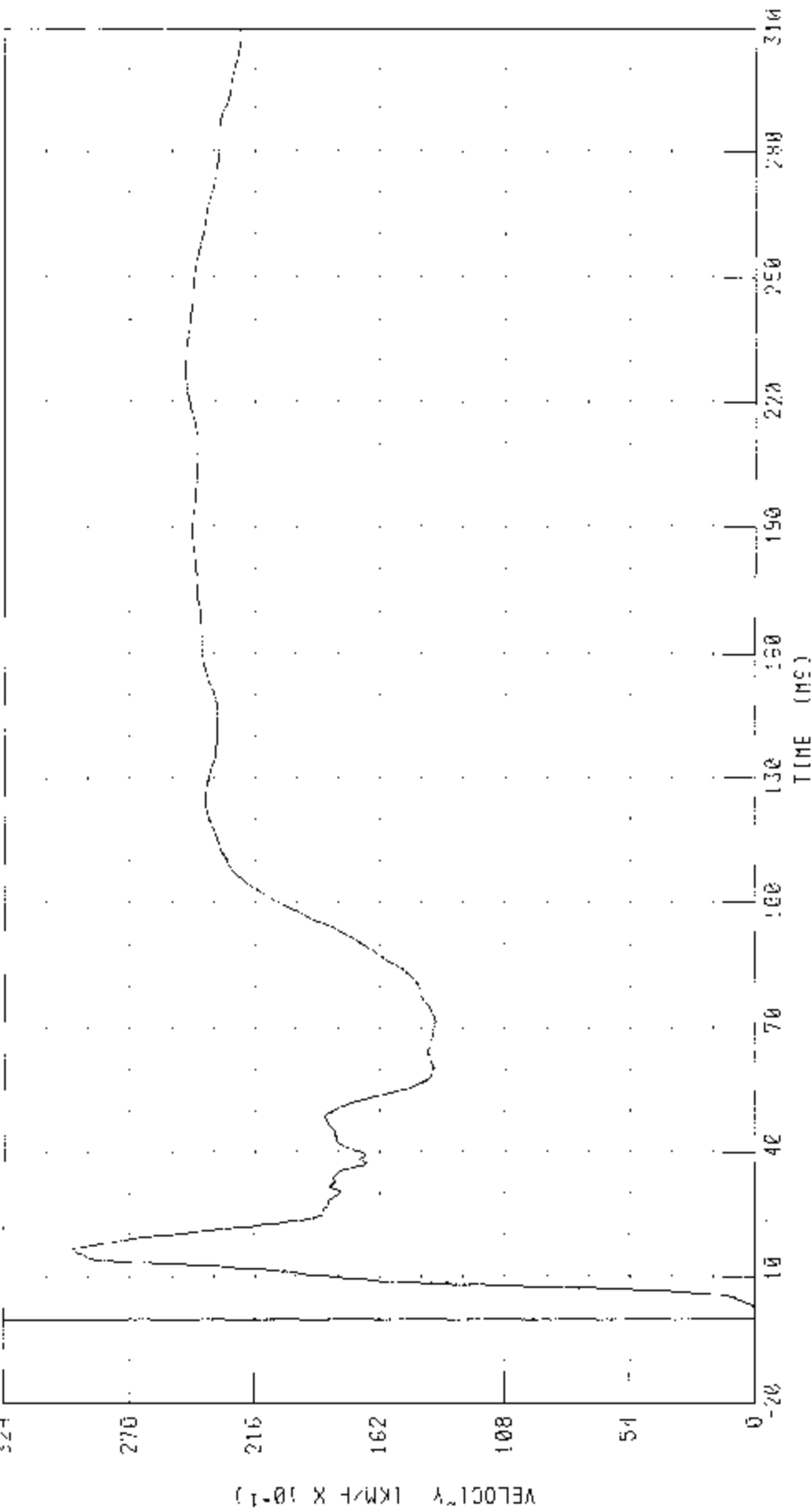
55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT VEHICLE 0 POST Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TRC INC.

TEST NUMBER: 030924-1



CHANNEL LM0002 FILTER CH 0.40S 180

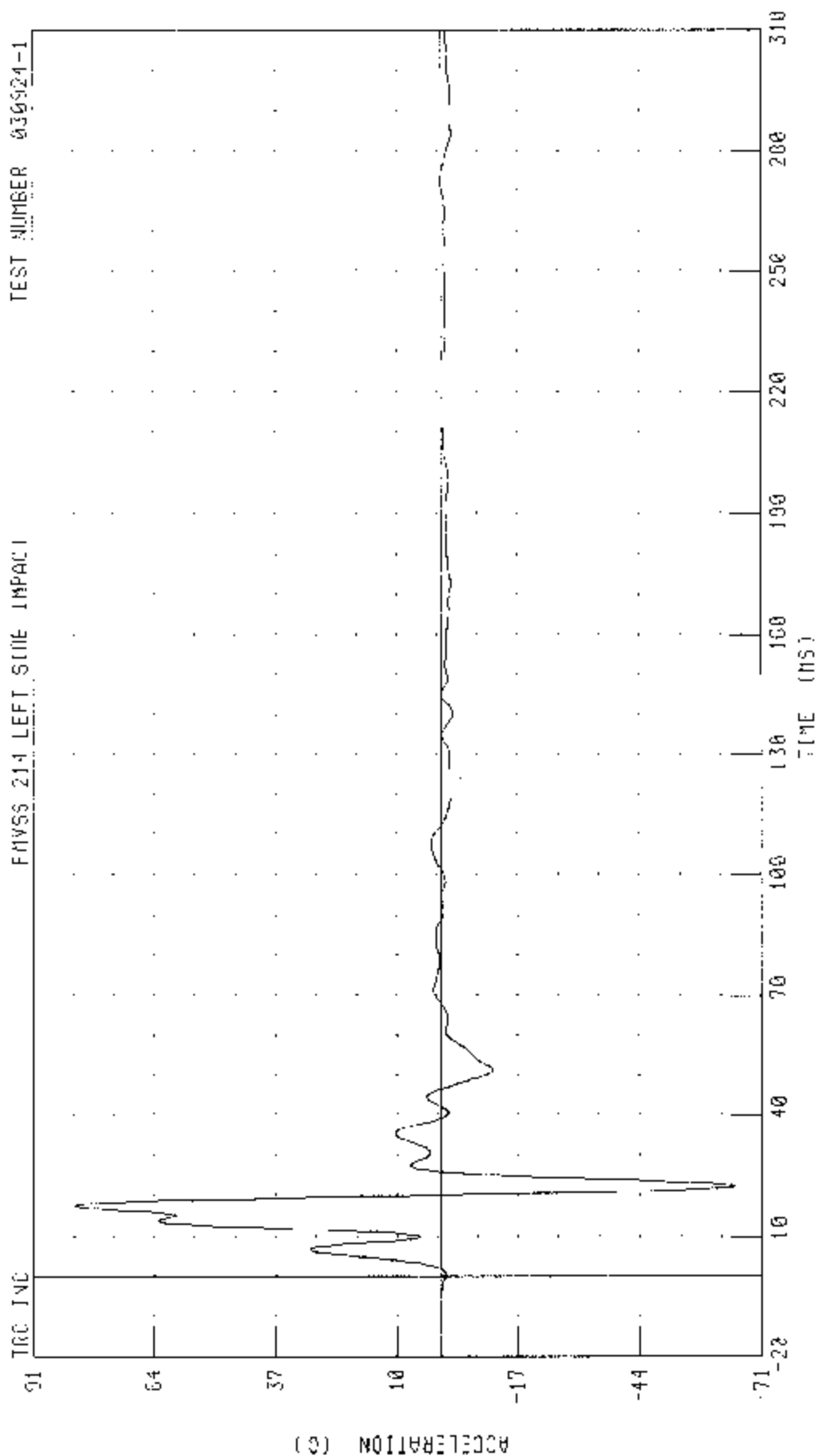
PEAK DATA 29.53 KPH @ 18.40 MS 0.00 KPH @ 0.00 MS

60/26 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT FRONT SEAT TRACK Y-AXIS ACCELERATION

TEST NUMBER 030924-1

FMVSS 214 LEFT SIDE IMPACT



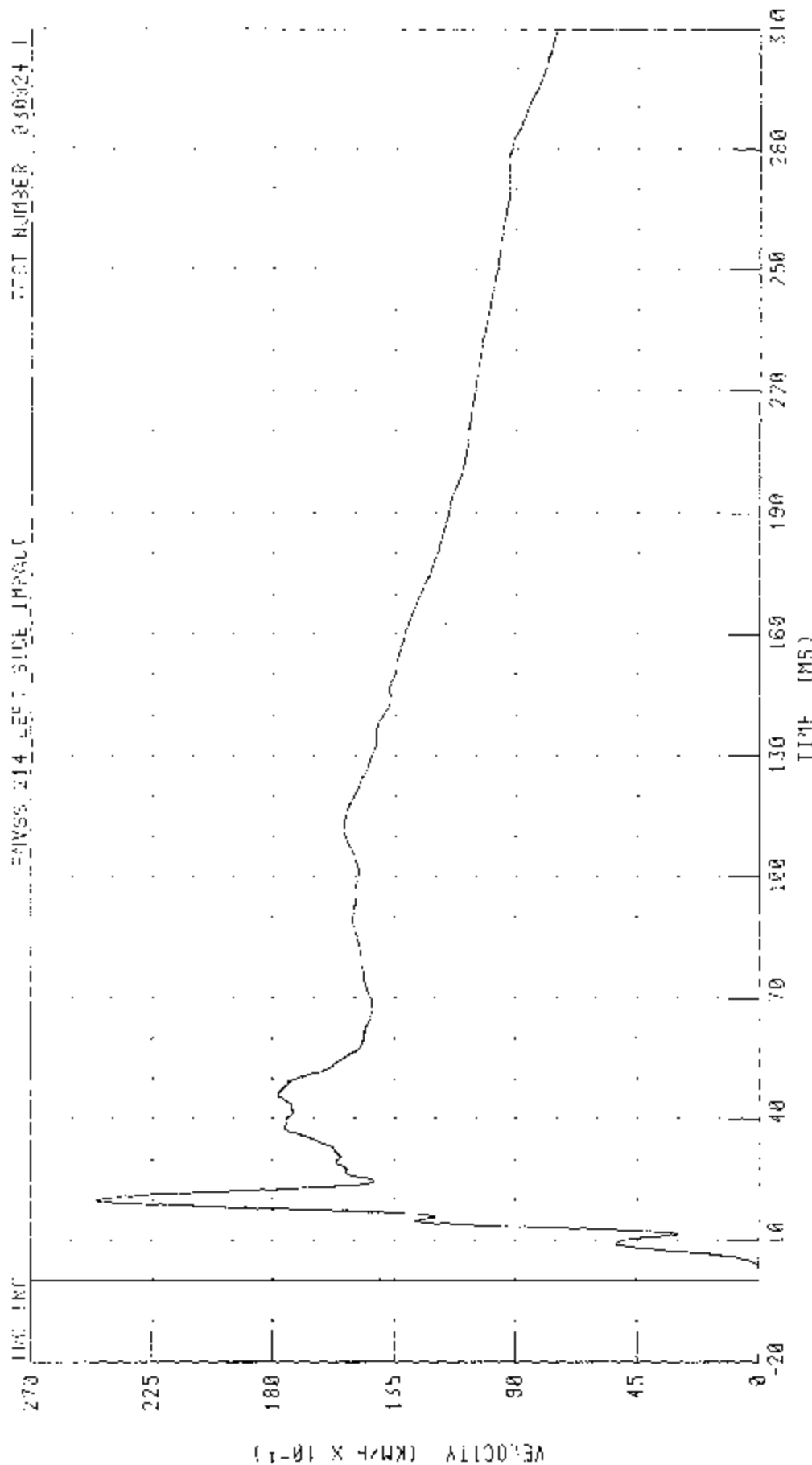
CHANNEL 1 (1Y) FILTER CH. CLASS 60

PEAK DATA 82 25 6 17 52 MS. -65.06 G @ 22 32 MS

55.23 KPH 90 DEGREE SIDE IMPACT MOVING OFFFORMERLE BARRIER INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT FRONT SEAT TRACK Y-AXIS VELOCITY

TEST NUMBER 030924-1



CHANNEL: LJ (YV1) FILTER: CH CLASS 180

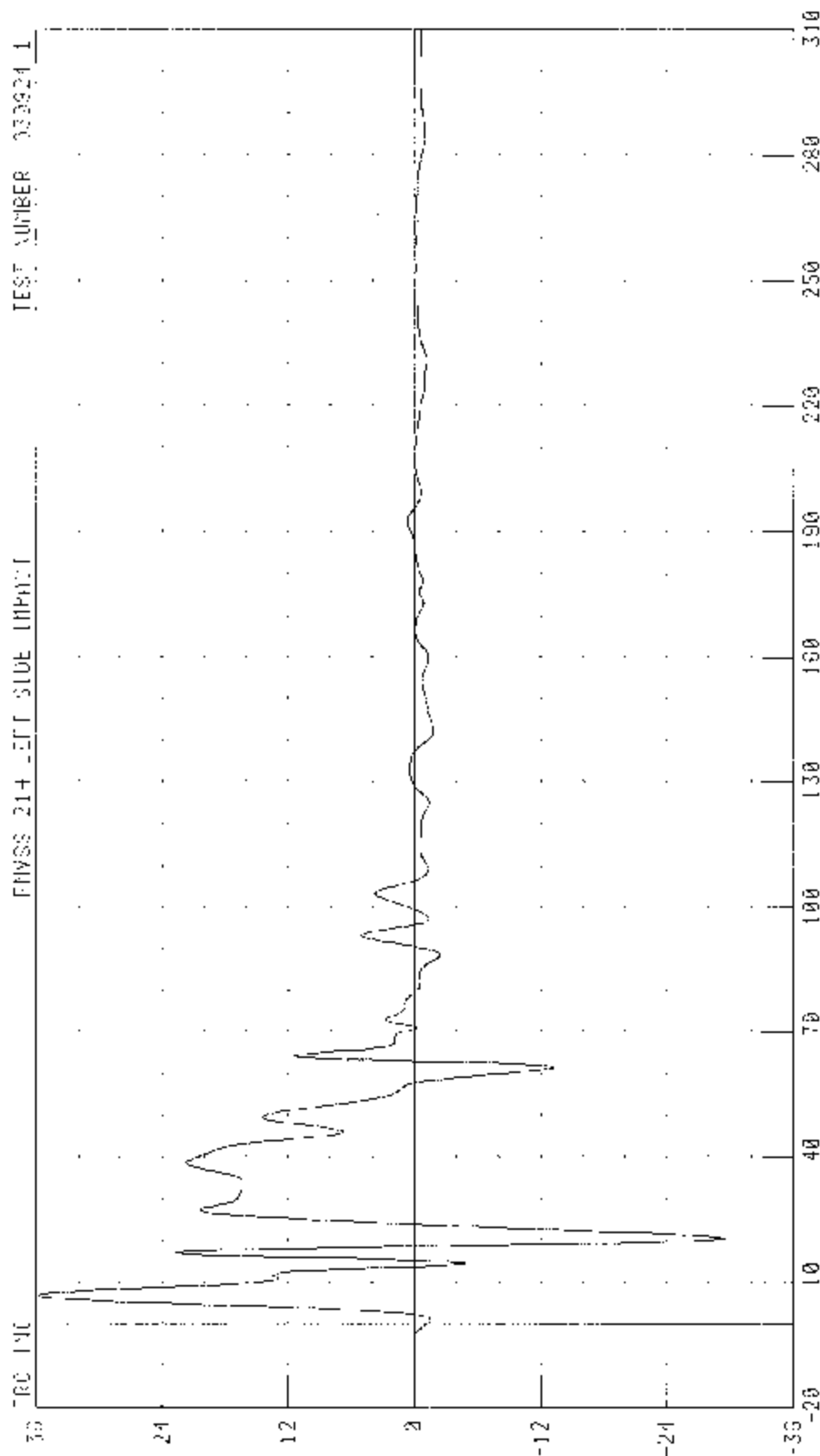
PEAK DATA: 24.50 KPH @ 19.84 MS, 0.02 CM/H @ 0.00 MS

55/25 FPD 40 CRACK 3100 IMPACT MOVING DEFLECTOR BARREL INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR SEAT TRACK Y-AXIS ACCELERATION

TEST NUMBER 030924-1

FNVS 214 LEFT SIDE IMPACT



TIME (MS)

CHANNEL1 LRTY01 FILTER: 01 0.000 00

PEAK DATA 35.77 6.3 7.04 MS; -29.19 5.6 20.56 MS



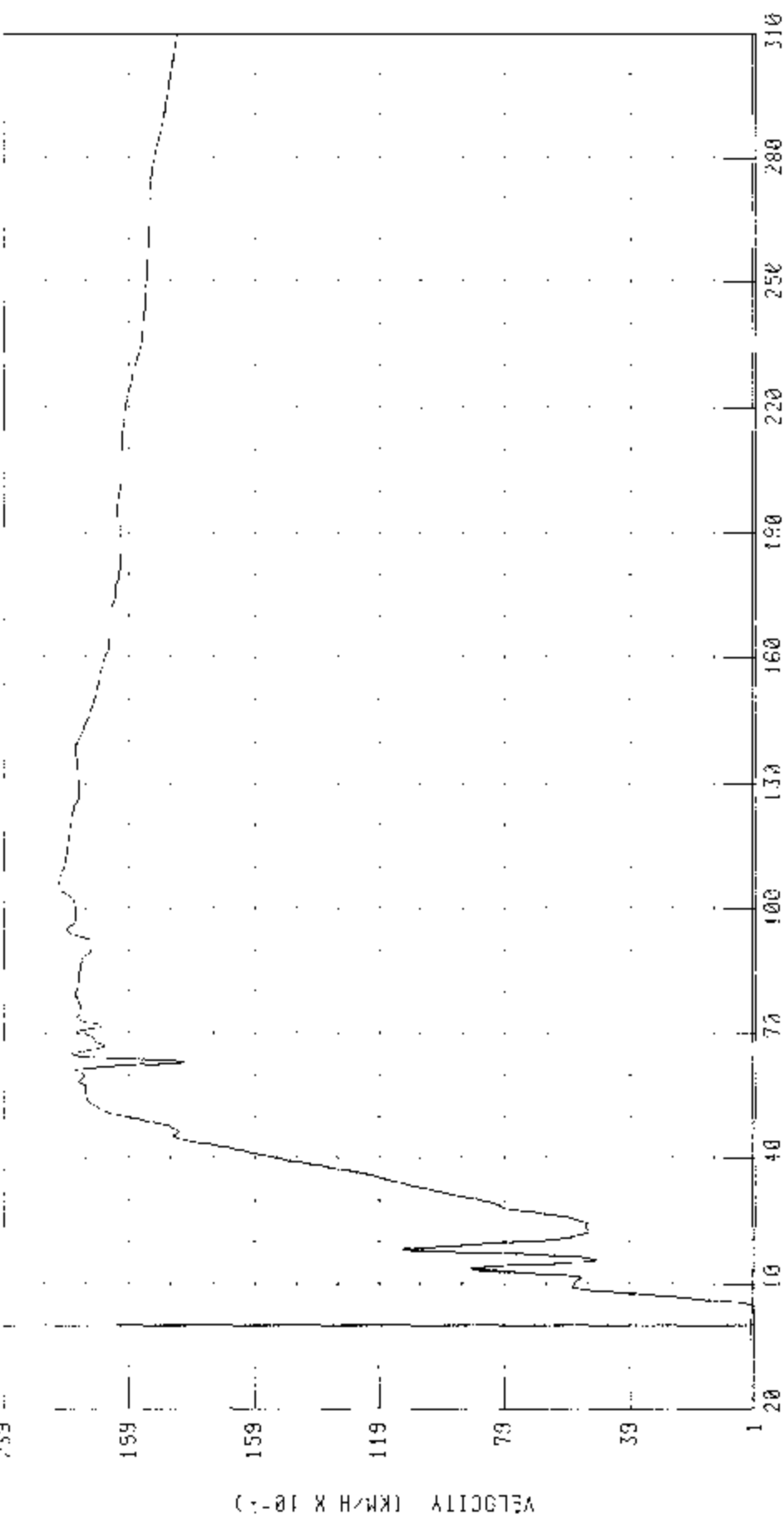
0.026 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BAR EP: INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR SHOCK TRUCK X-AXIS VELOCITY

TRC INC.

EVENT 214 LEFT SIDE IMPACT

TEST NUMBER 030924-1



TIME INSI

CHANNEL LRTY1 FILTER CP CLASS 180

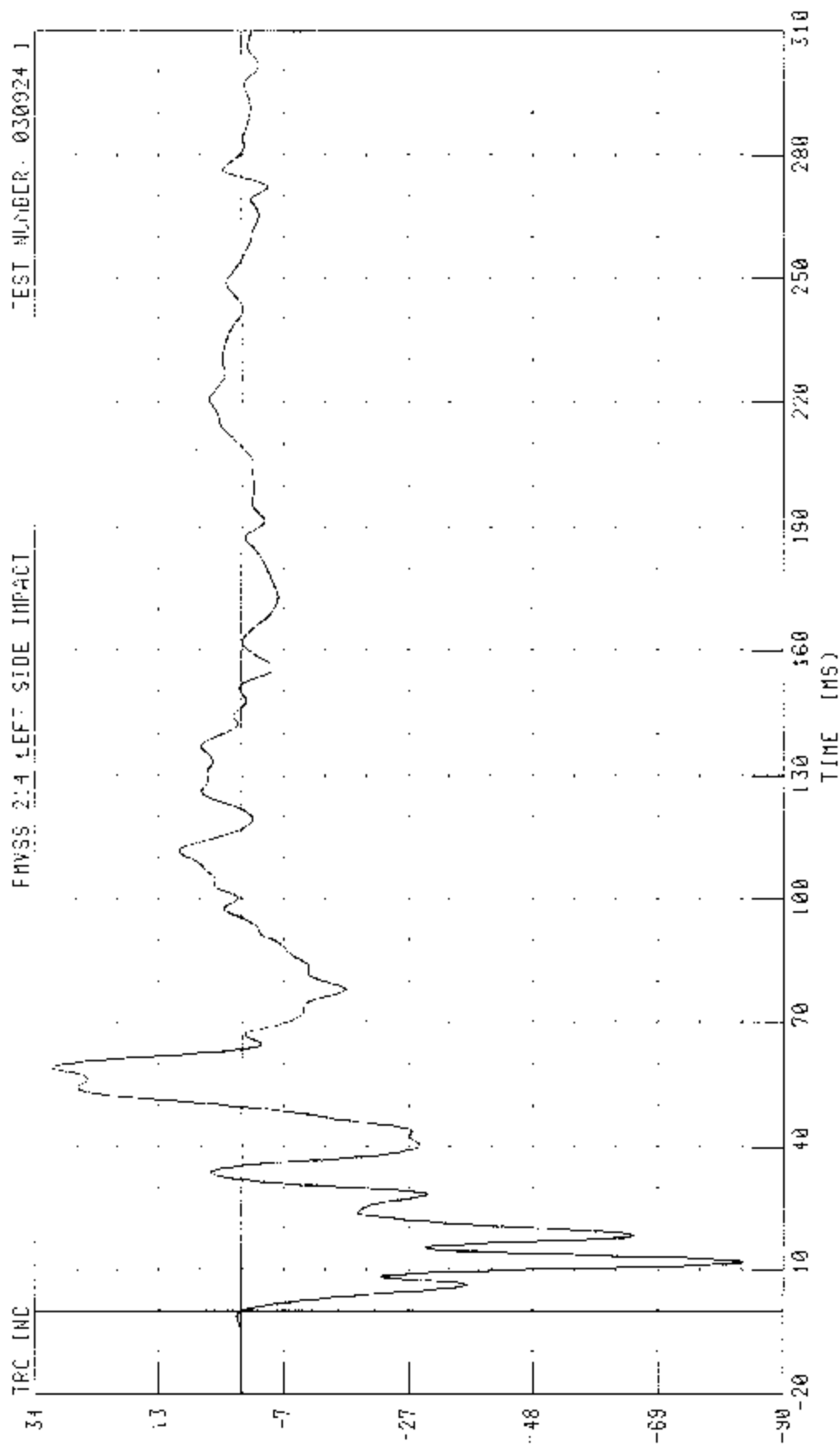
PEAK DATA 22.15 KPH @ 105.52 MS, -6.12 KPH @ 4.24 MS

55/28 KPH 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2001 LEXUS RX330

VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION

FRVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030924-1

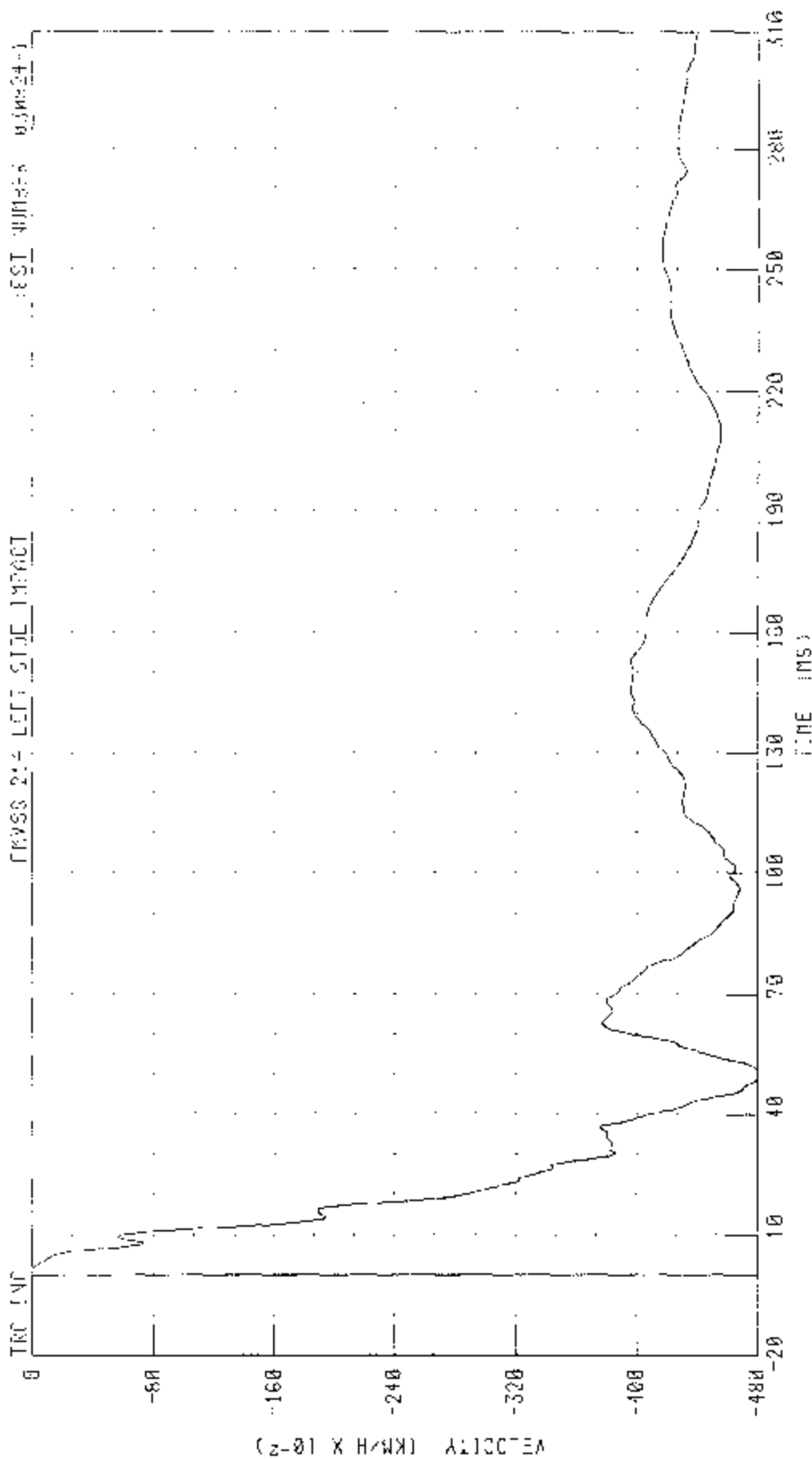


CHANNEL: VCG4C1 FILTER: CH CLASS: 60

PEAK DATA: 3 21 0 0 39 20 MS, -8 41 0 0 12 00 MS

55.20 KPH 50 DEGREE SIDE IMPACT (MOVING DEFORMED FRONT) INTO LEFT SIDE OF 2004 LEXUS RX350

VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY



CHANNEL WCCXV1 FILTER CH CLASS 180

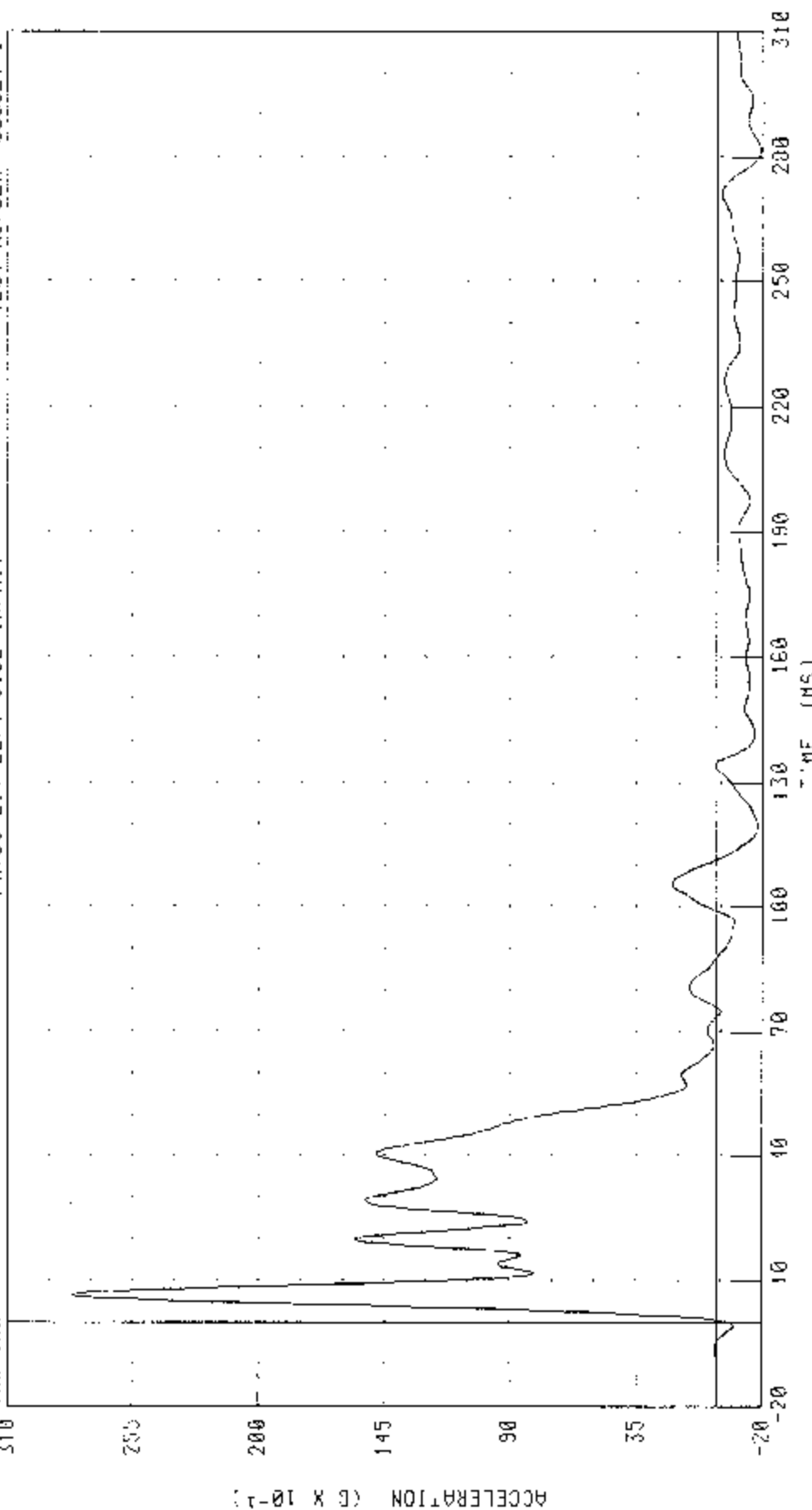
55/28 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO THE SIDE OF 2004 LEXUS RX330

VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION

TEST NUMBER 030924-1

FMVSS 214 LEFT SIDE IMPACT

IRC INC

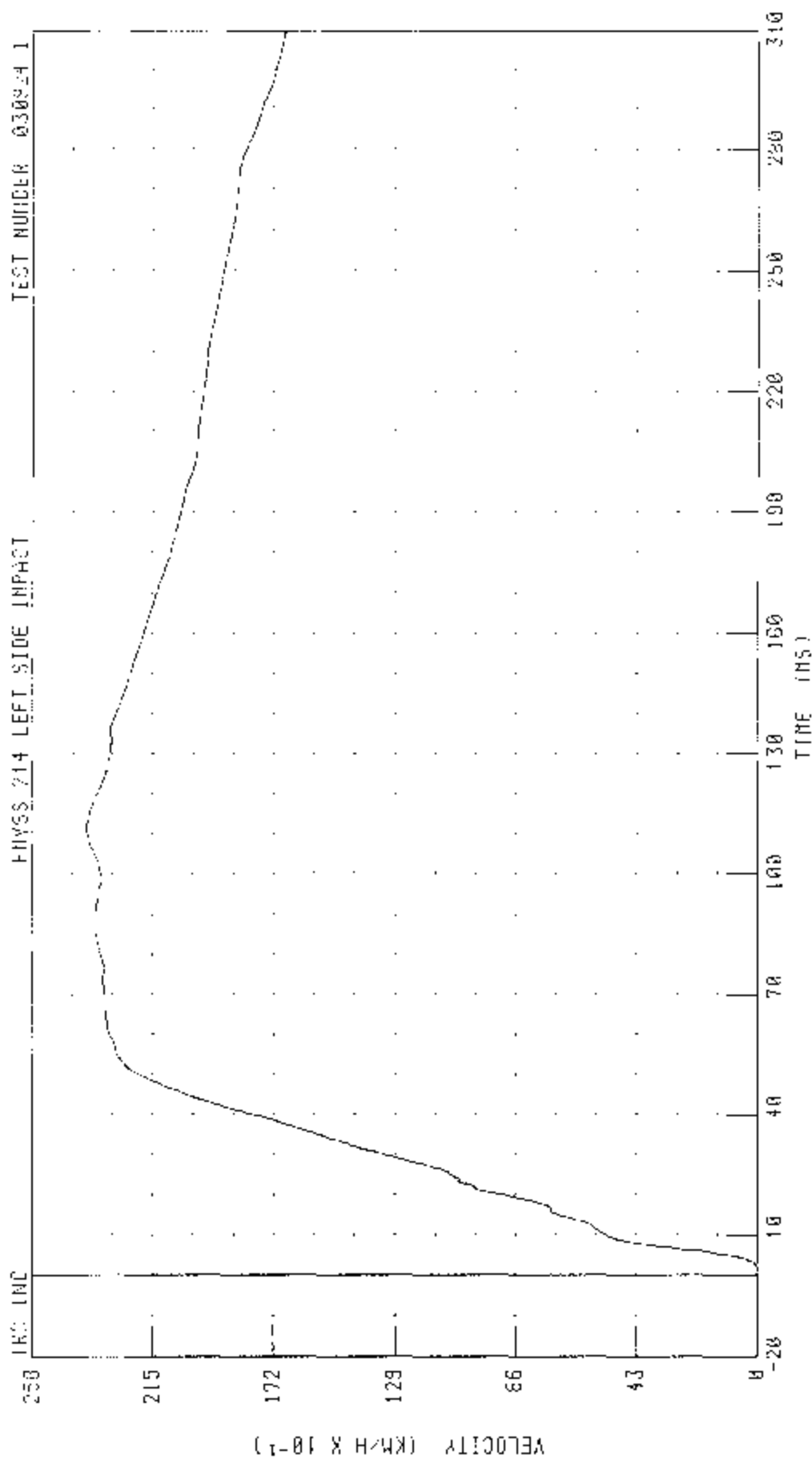


CHANNEL VCCYC1 FILTER CH CLASS 60

PEAK DATA 28 12 0 0.40 MS, -1 90 C @ 281 44 MS

55/20 KPH 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330H

VEHICLE CENTER C- GRAVITY Y-AXIS VELOCITY



CHANNEL VCCYV1 FILTER CH. CLASS 180

PLAY DATA: 03 57 KPH 0 11 12 MS. 0 20 KPH 0 1 52 MS

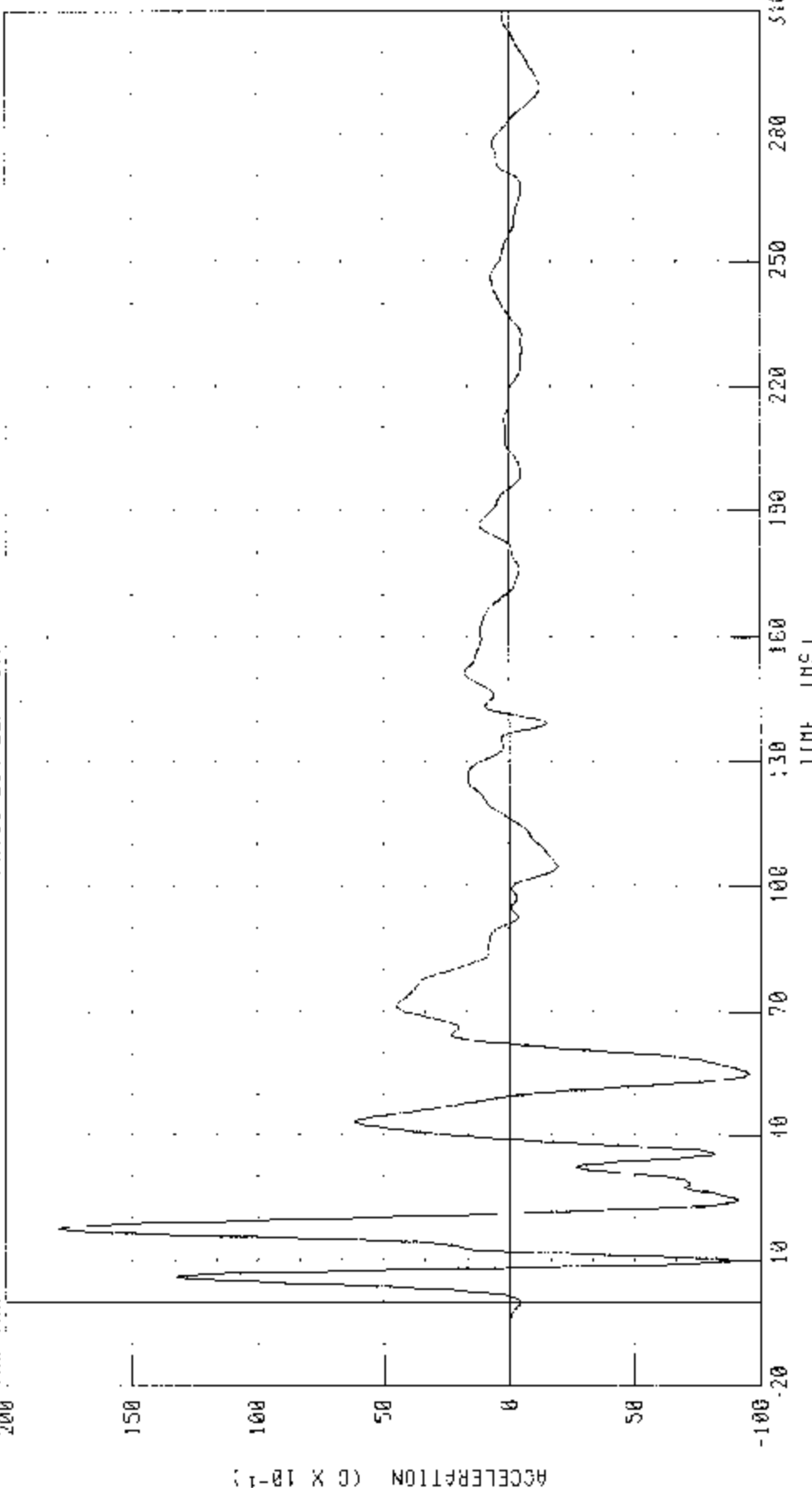
55-20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

VEHICLE CENTER OF GRAVITY Z-AXIS ACCELERATION

TEST NUMBER 030924-1

FMVSS 214 LEFT SIDE IMPACT

IRC INC



LINAME\_ VCCZ01 FILTER CH CLASS 60

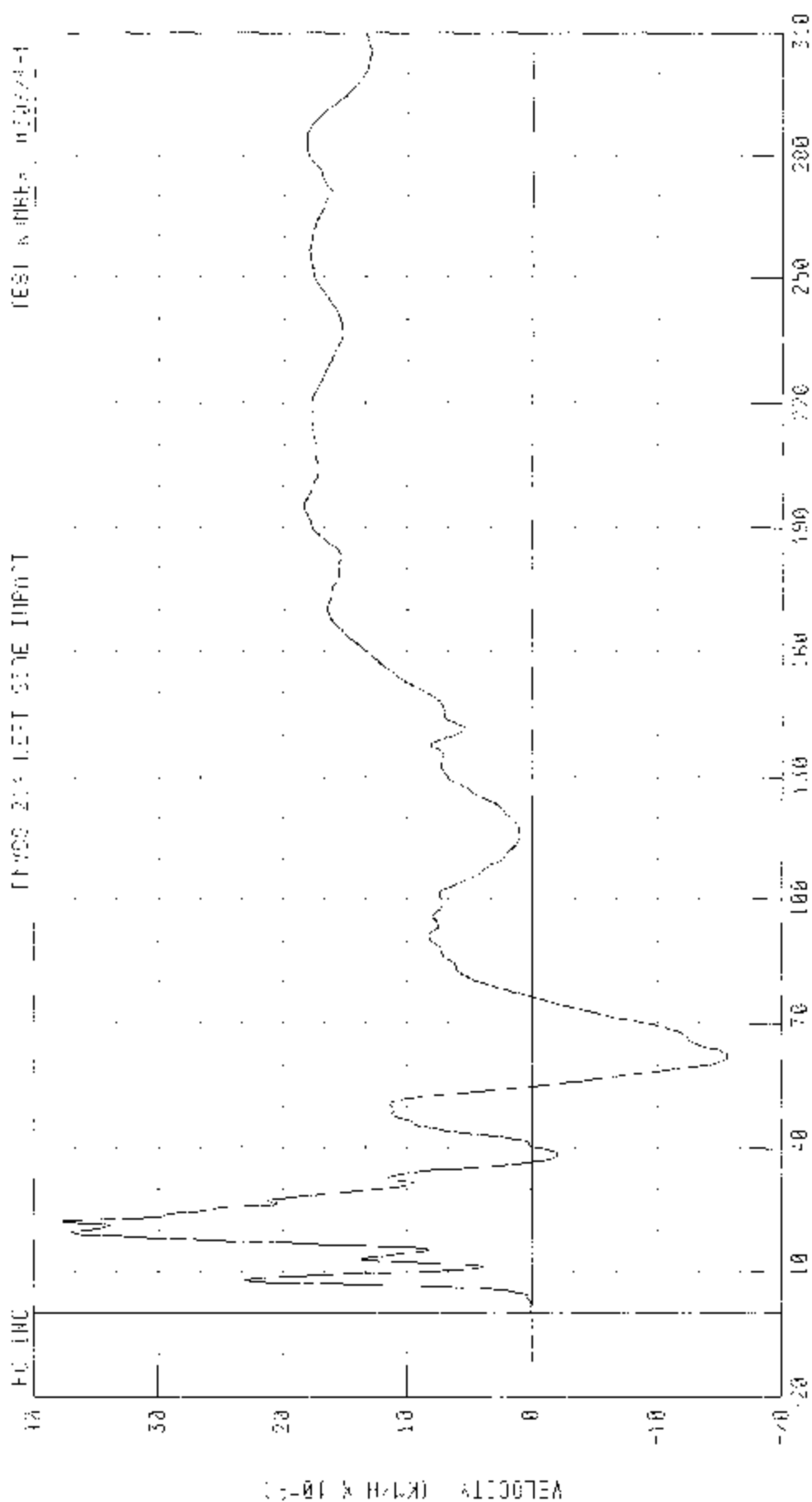
PEAK DATA 17 95 5 0 17 52 MS, -9 53 5 0 54 80 MS

55-23 491 53 DESERT WIDE IMPACT MOVING DE-ORBITABLE REVERI 1110 REF SITE OF 200- 12X00 RX234

VEHICLE CENTER OF 5000 Y Z-AXIS VELOCITY

FM000 203 LEFT SIDE IMPACT

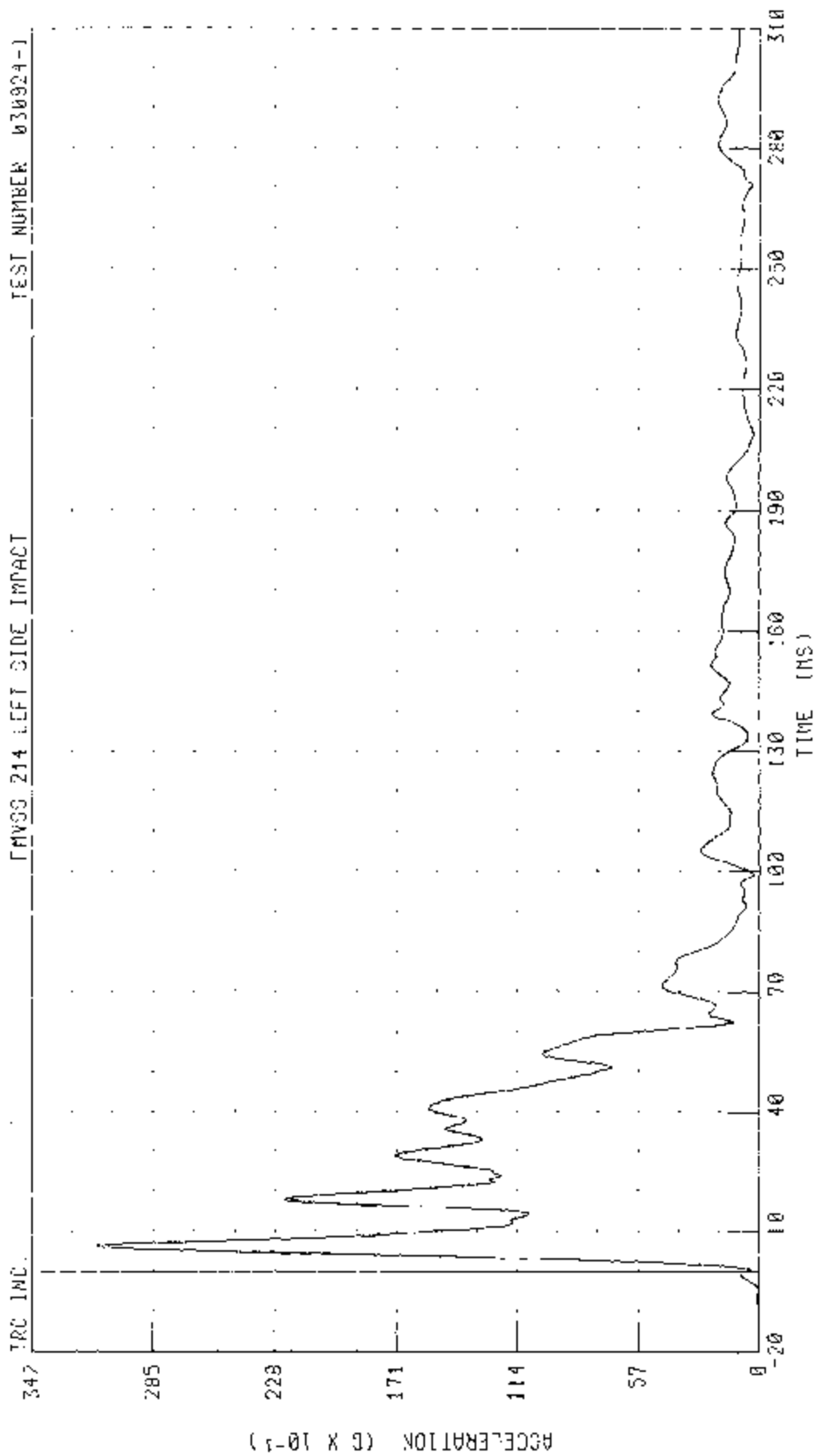
TEST NUMBER: 030924-1



CHANNEL 000291 FILTER OF CROSS 150

PEAK DATA: 5.79 40.1 0.37 42.19, -1.58 41.16 0.24 42.19

5/1/28 400 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330  
 VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION



CHANNEL VCCRG1 FILTER CH. CLASS 60 PEAK DATA: 31 26 G @ 6 40 MS, 0 00 G @ -11 84 MS



MDB Instrumentation Plots

Acceleration Data - Filter Class 60

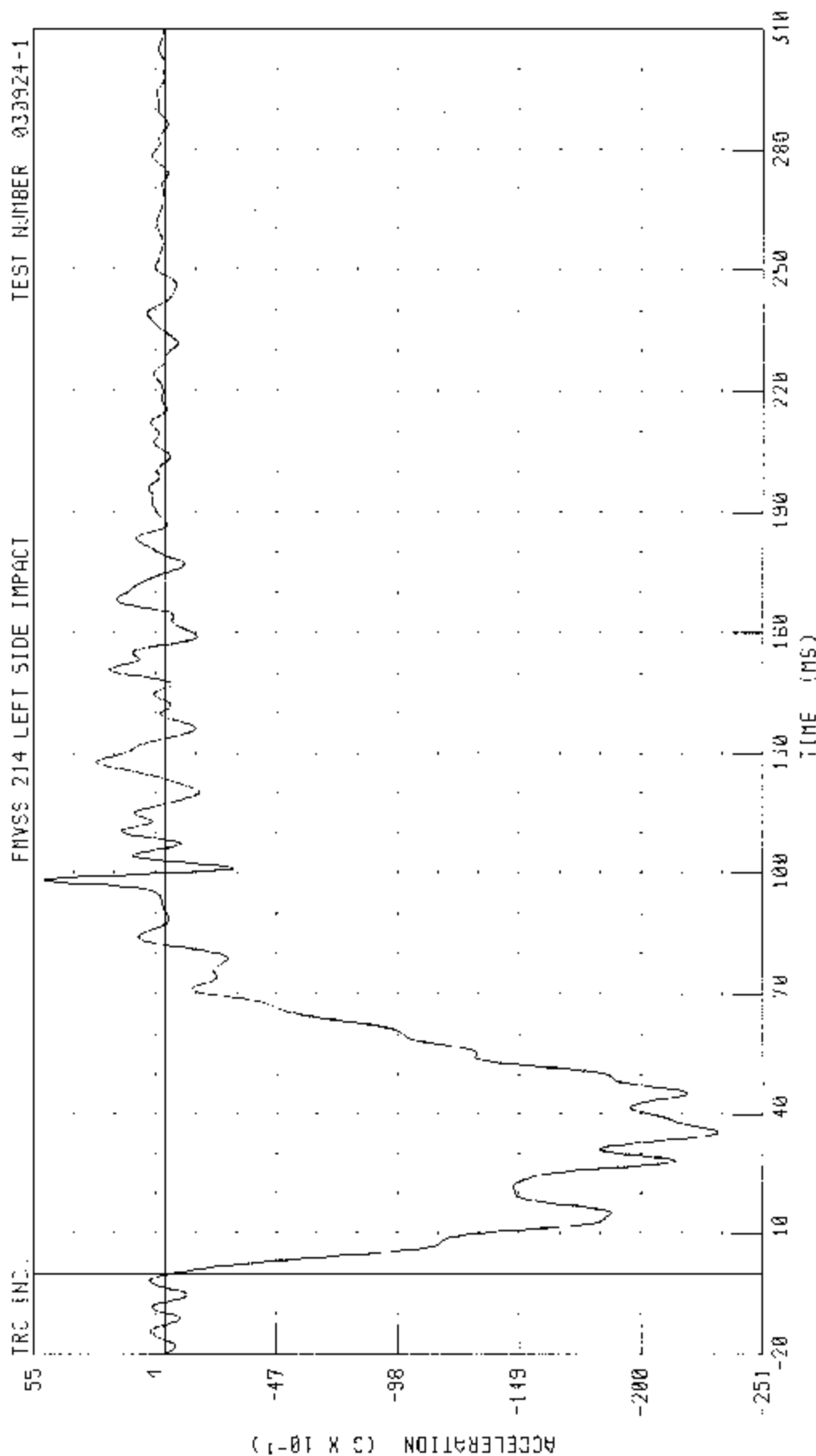
Integration Data - Filter Class 180

55/26 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

M03 CENTER OF GRAVITY X AXIS ACCELERATION

TEST NUMBER 030924-1

FMVSS 214 LEFT SIDE IMPACT

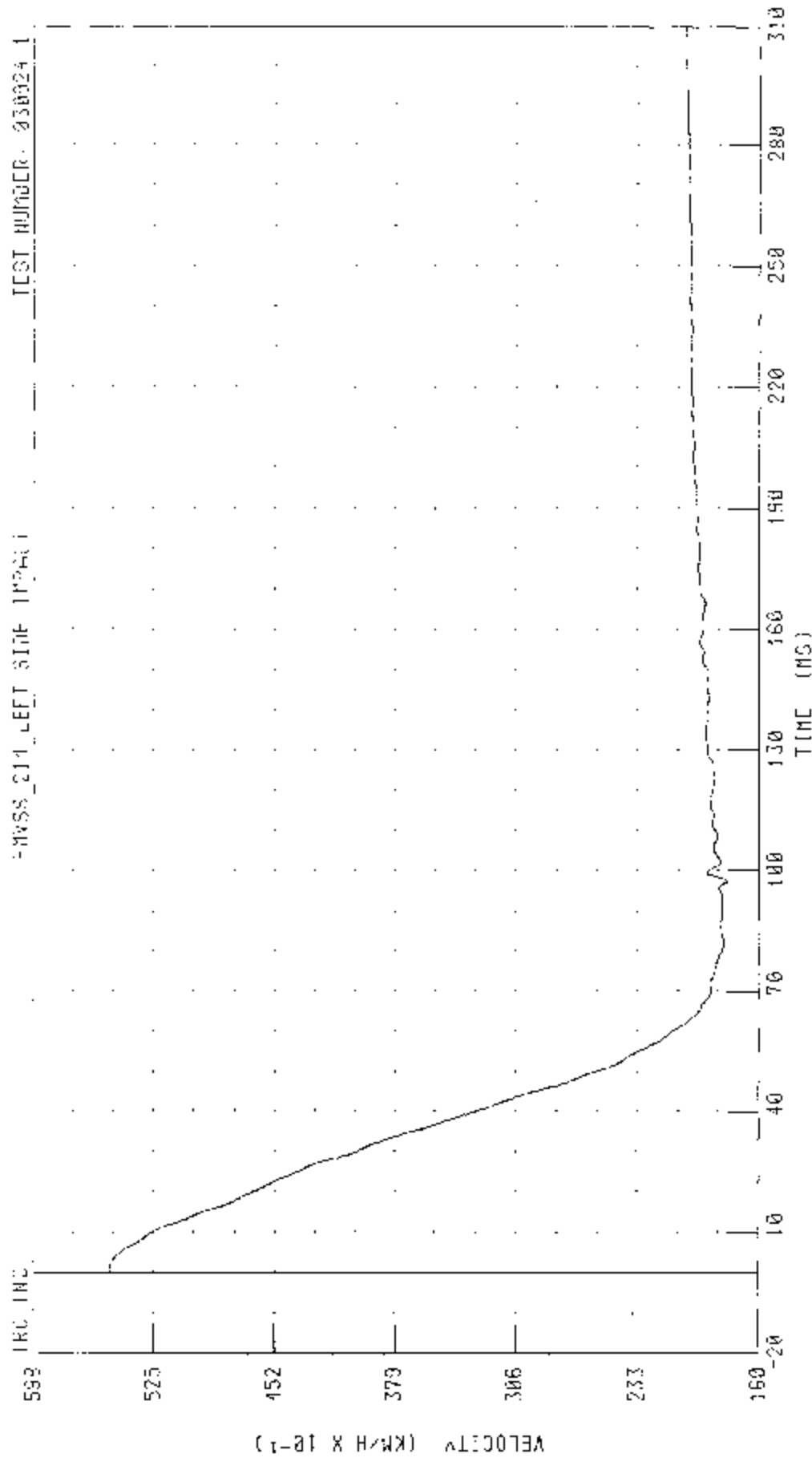


CHANNEL BDCXG1 FILTER CH CLASS 60

PEAK DATA 5 07 0 0 98 16 MS, -23.23 G 0 35 44 MS

55/23 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE CARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

HUB CENTER OF GRAVITY X AXIS VELOCITY



CHANNEL 000XV1 FILTER: CII CLASS 100

PEAK DATA 55 20 KPH 90 DEGREE SIDE IMPACT

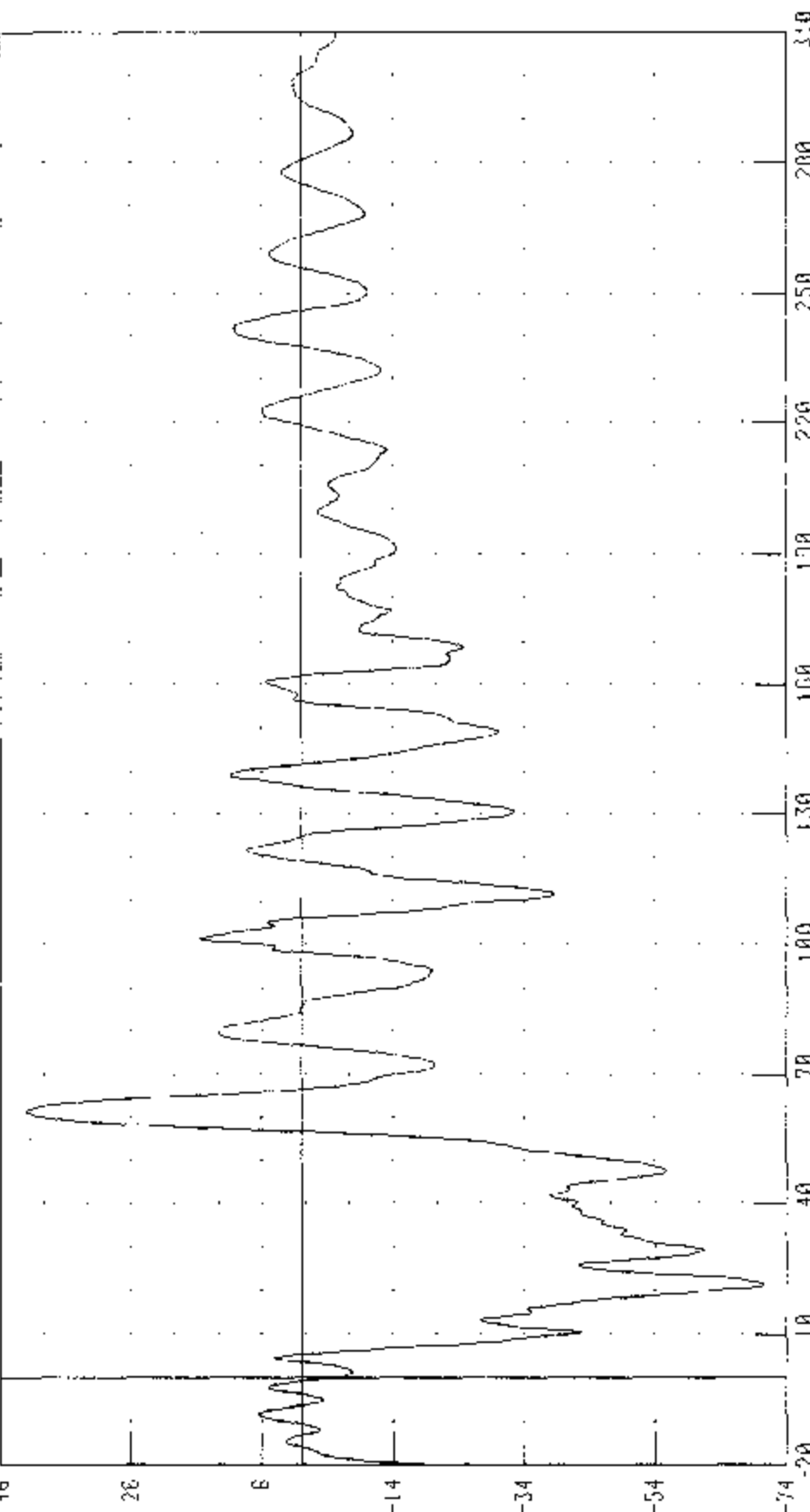
55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

1206 CENTER OF GRAVITY Y-AXIS ACCELERATION

TEST NUMBER: 030924-1

FMVSS 214 LEFT SIDE IMPACT

TRC INC



TIME (MS)

CHANNEL: BCCYC1 FILTER: CH CLASS 60

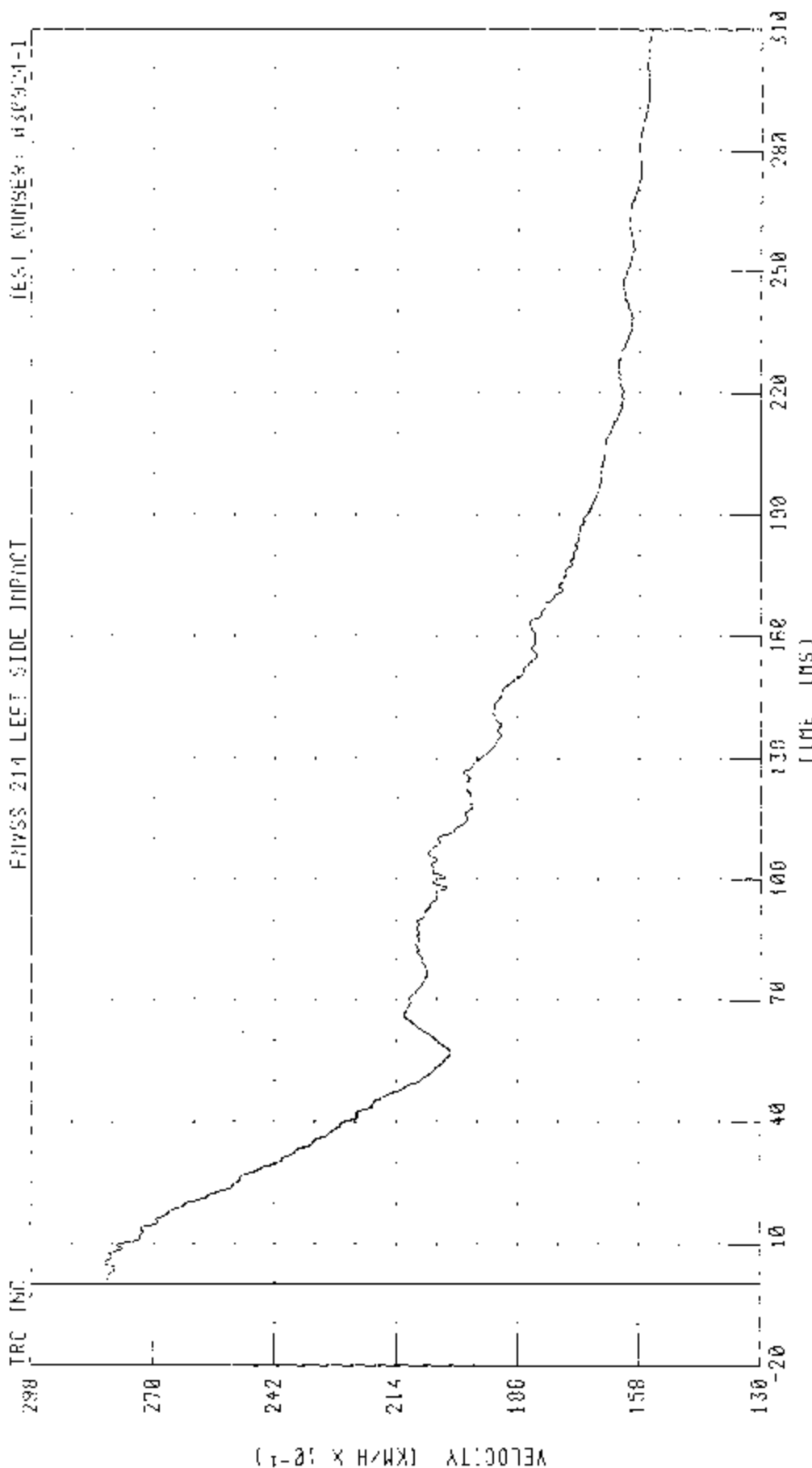
PEAK DATA: 4.20 G @ 61.60 MS; -7.07 G @ 213.6 MS

55025 KPH 50 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

MOB CENTER OF GRAVITY Y AXIS VELOCITY

PHYS 214 LEFT SIDE IMPACT

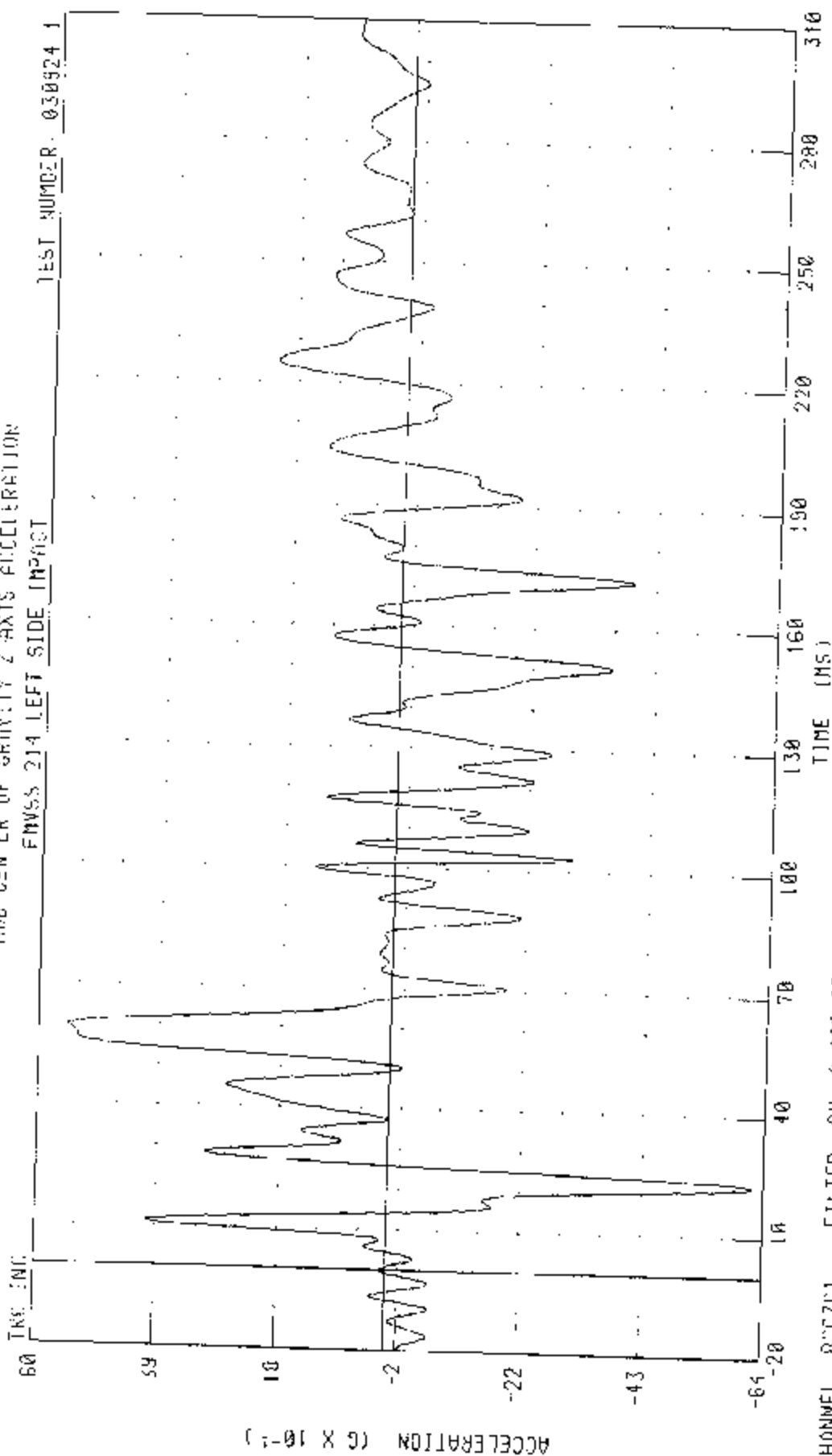
TEST NUMBER: 030924-1



CHANNEL: BCCYV1 FILTER: LH CLASS 130

PEAK DATA: 28 10 KPH @ 5 44 MS, 15 48 KPH @ 310 MS

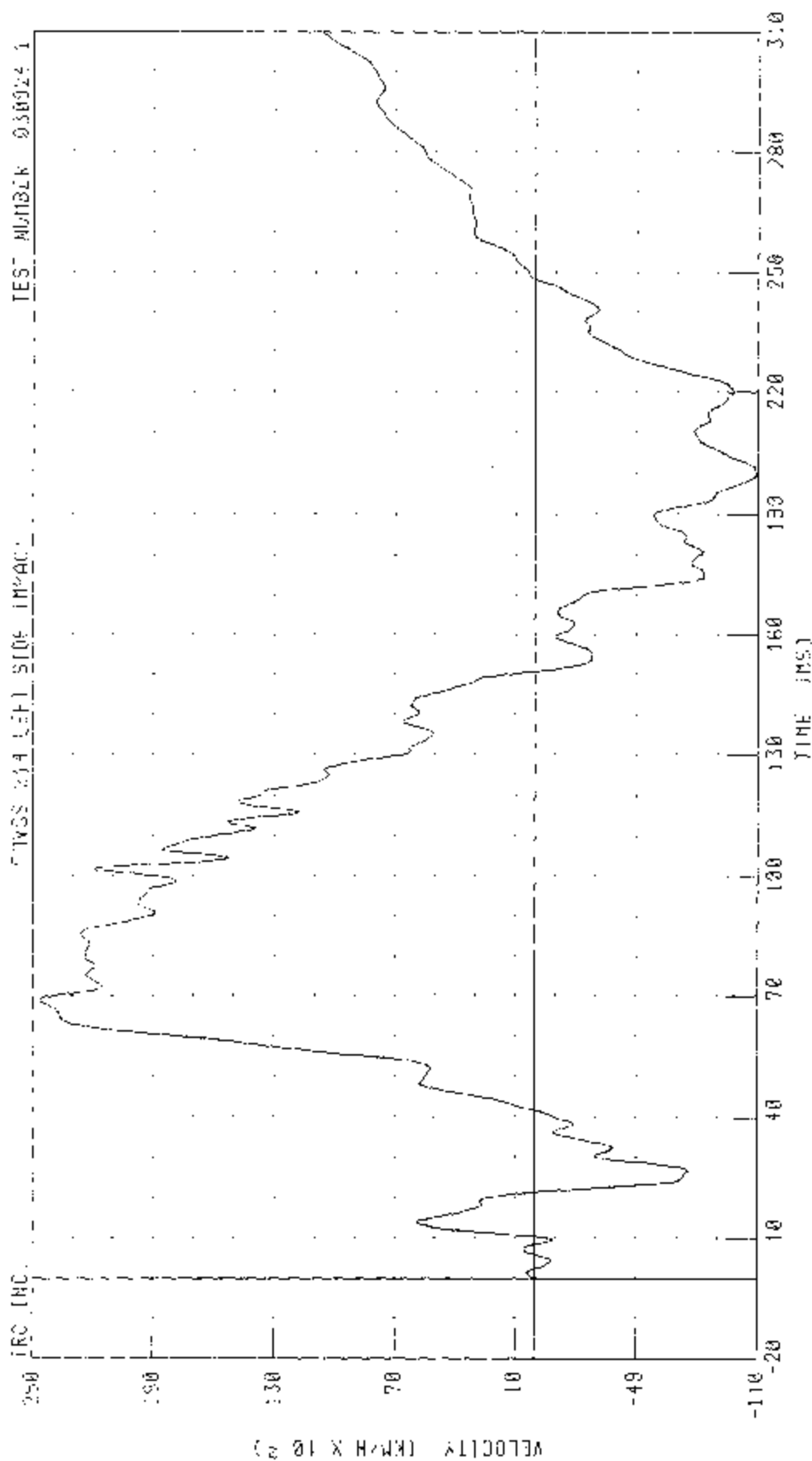
55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330  
MOB CENTER OF GRAVITY Z AXIS ACCELERATION



PEAK DATA 5 58 0 59 52 MS; -6 31 0 22 40 MS

55.28 KPH 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

MEB CENTER OF GRAVITY Z-AXIS VELOCITY



PEAK DATA 2.46 KPH @ 68.56 MS, -1.09 KPH @ 135.97 MS

CHANNEL BCGZV1 FILTER CH CLASS 180

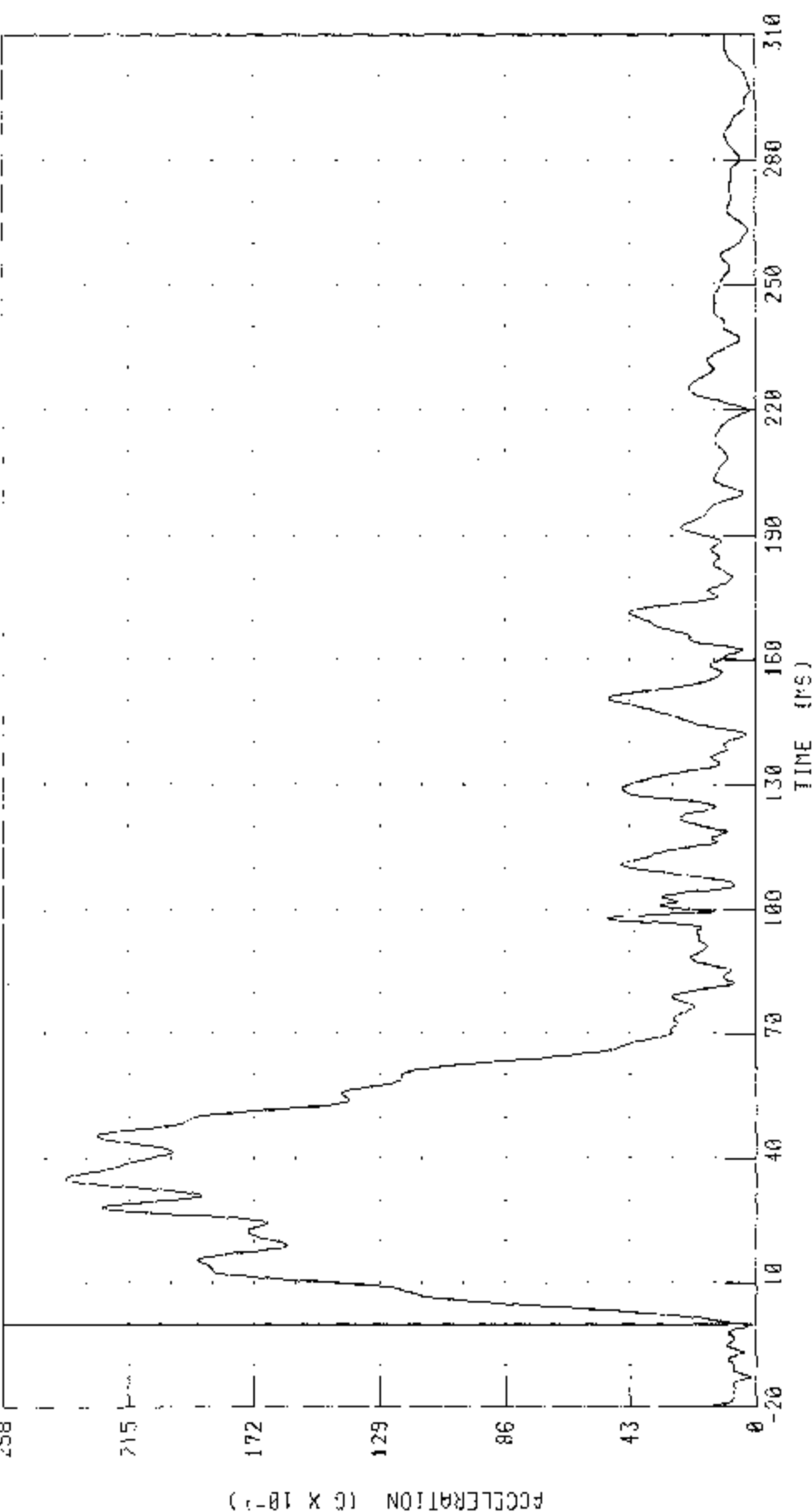
55/28 KPH 00 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

M08 CENTER OF GRAVITY RESJ. IAWI ACCELERATION

TRC INC

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030924-1



CHANNEL - BCGRG1 FILTER ON CLASS 00

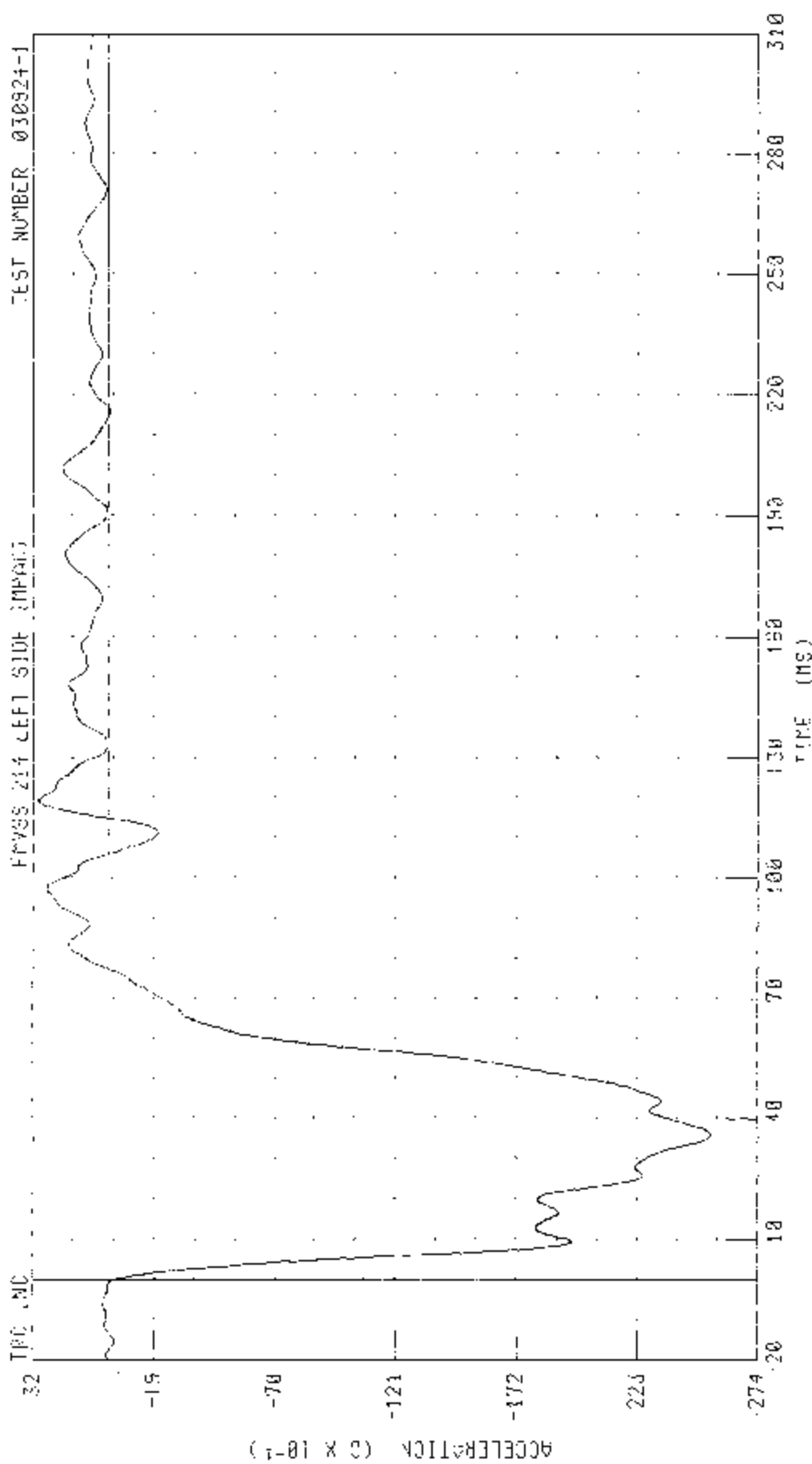
PEAK DATA 23.71 G @ 35.36 MS. 0.14 G @ -12.88 MS



55/29 KPH 40 DEGREE SIDE IMPACT CRUSHING DEFORMABLE BARRIER ILC LEFT SIDE OF 2004 LEXUS RX330

FOR LEFT REAR X-AXIS ACCELERATION

EVES 214 LEFT SIDE IMPACT TEST NUMBER 030924-1



CHANNEL LRRXG1 FILTER CH. CLASS 60

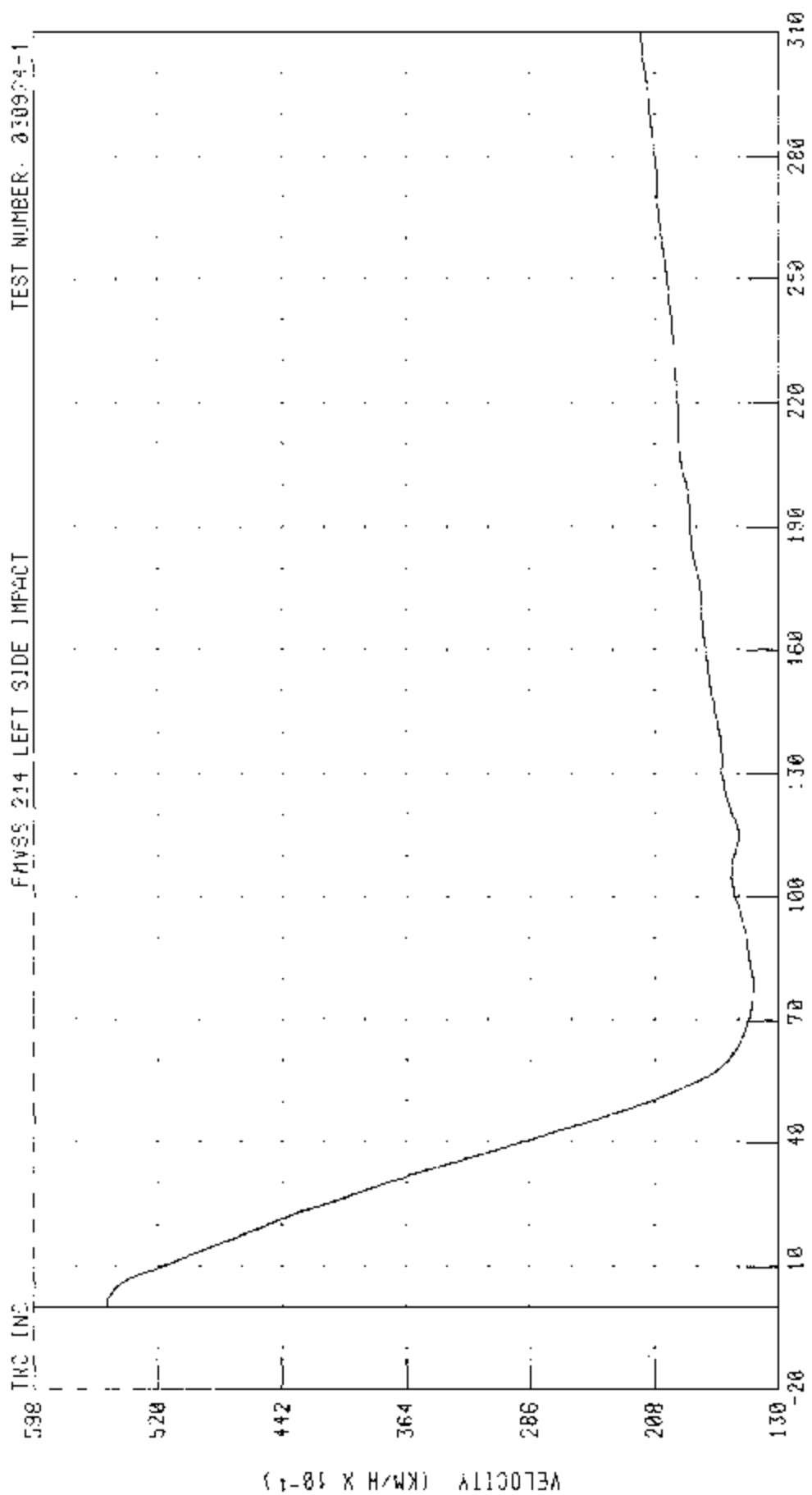
PEAK DATA 2.94 G @ 119.36 MS, -25.41 G @ 30.92 MS

55/78 KPH 90 DEGREE SID- IMPACT MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

FOR LEFT REAR X-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030924-1



CHANNEL: LRRXV1 FILTER: CH CLASS 180

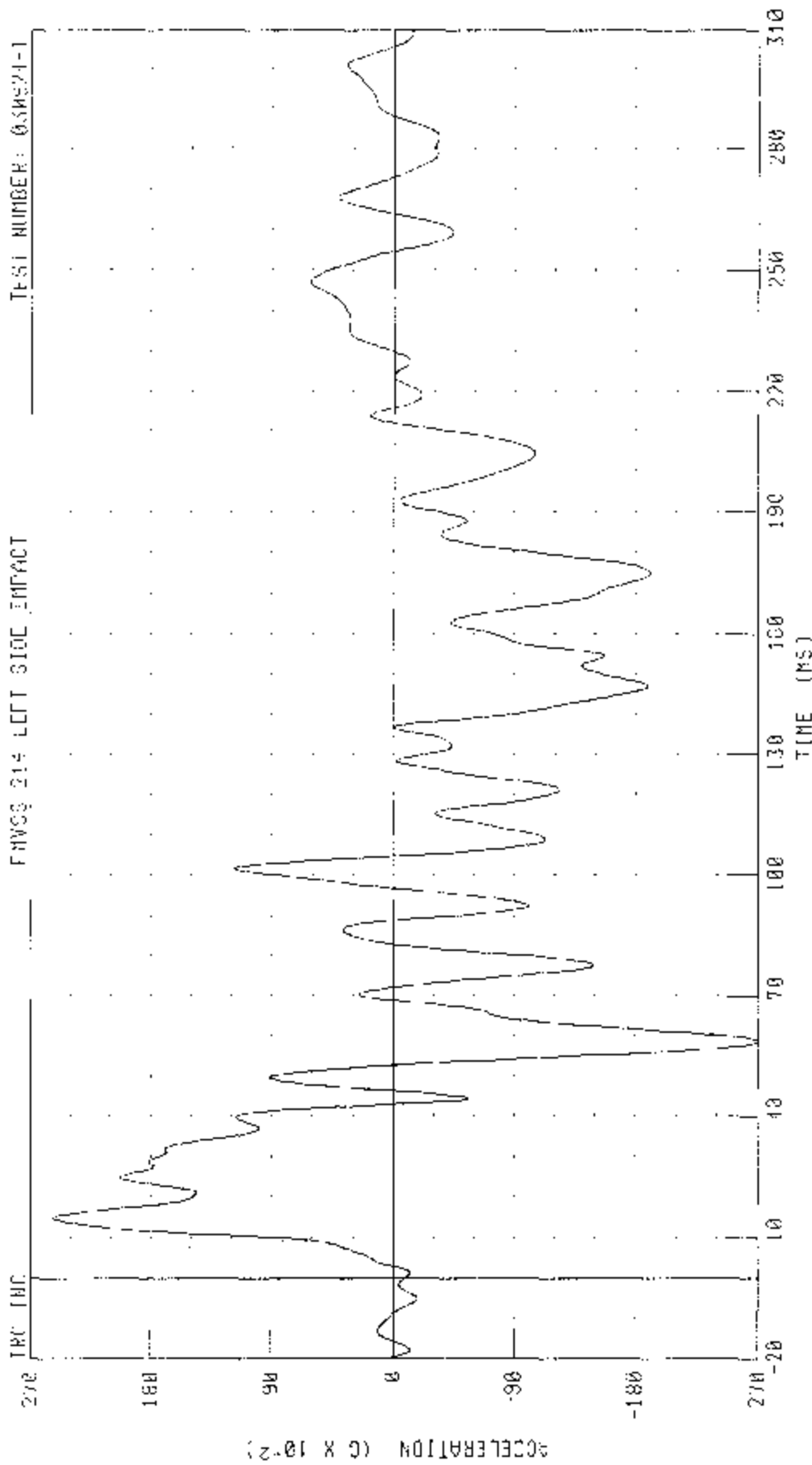
PEAK DATA: 55 22 KM/H @ 1 36 MS, 14 52 KM/H @ 77 32 MS

5/1/28 4PM 90 DEGR- SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2024 LEXUS RX330

HDB LEFT REAR Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 03ME24-1



CHANNEL LARG: FILTER CH CLASS E2

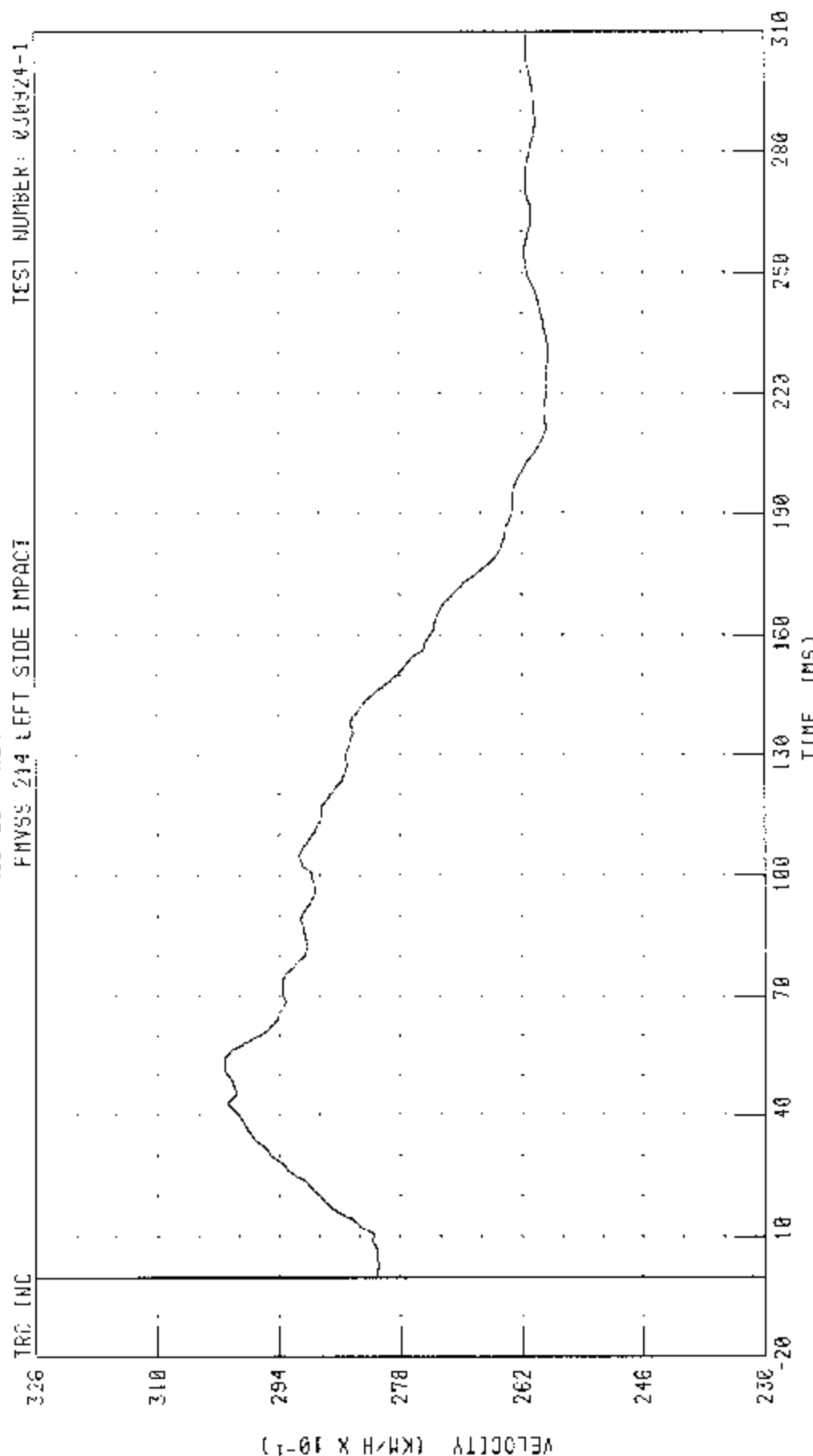
PEAK DATA 2 53 0 0 14 88 MS, 2 71 6 8 58 72 MS

55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

108 LEFT REAR Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030924-1



TIME (MS)

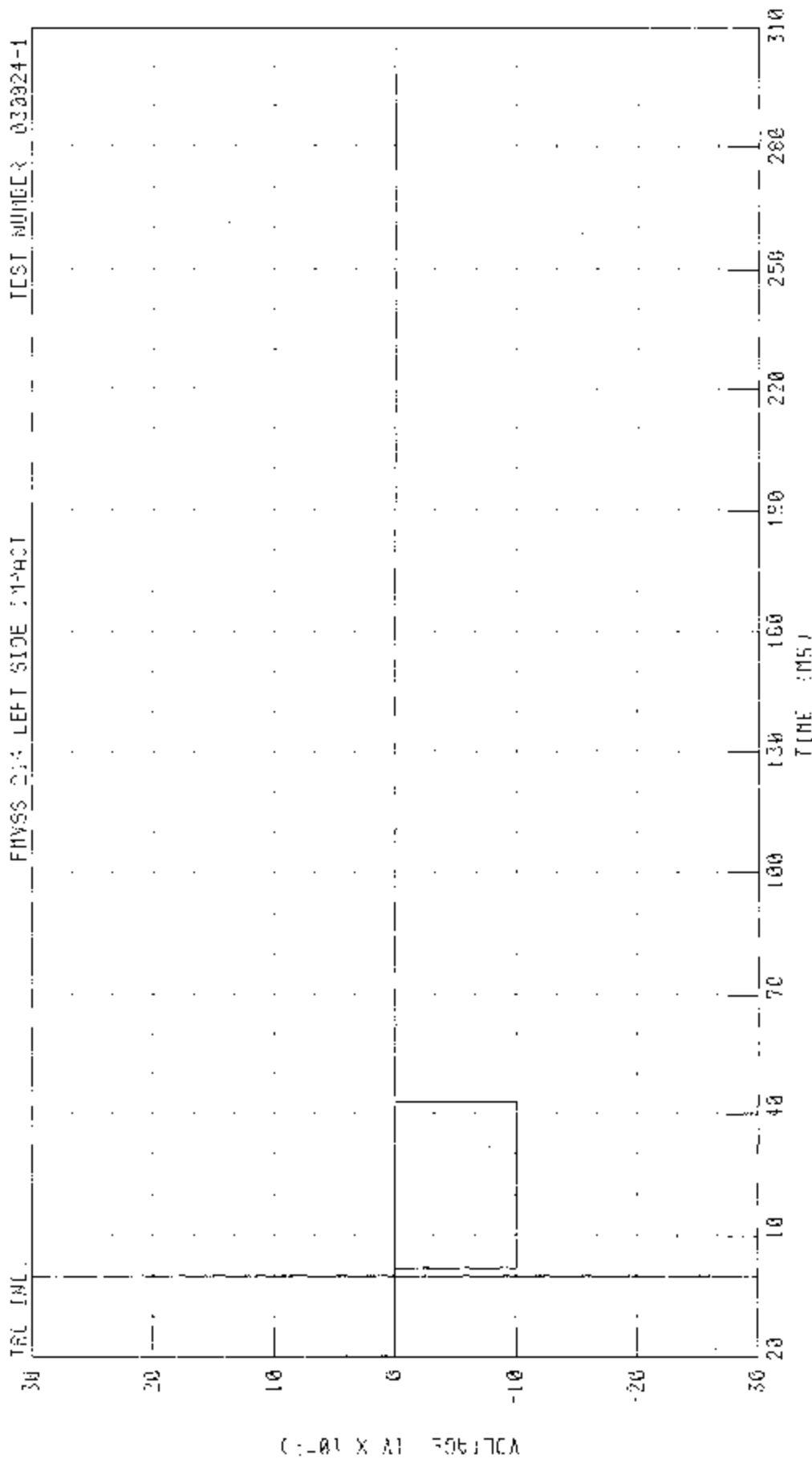
CHANNEL LRRYV1 FILTER: CH CLASS 180

PEAK DATA 30 13 KM/H @ 53 28 MS, 25 85 KM/H @ 230 16 MS

55-20 KPH 00 DEGREE SIDE IMPACT (MOVING, DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 FORD EX333

MOB RIGHT SIDE CONTACT SWITCH

TEST NUMBER 030924-1



CHANNEL 1 DER2 FILTER 01 CLASS 1000

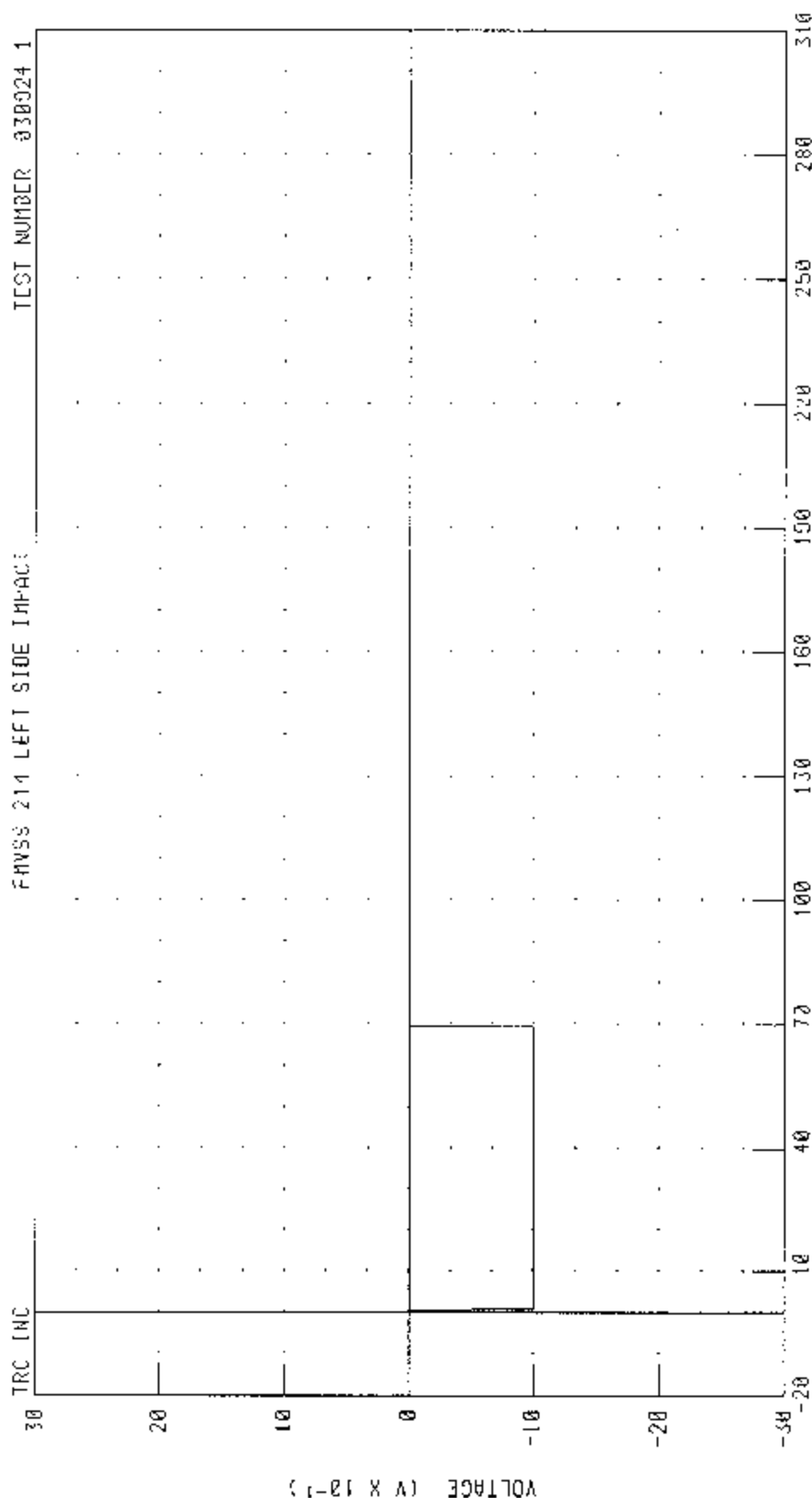
PEAK DATA 0 00 V @ 310 00 MS. -1 00 V @ 0 16 MS

55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 FORD FOCUS RX3.50

NDB LEFT SIDE CONTACT SWITCH

PNVS 214 LEFT SIDE IMPACT

TEST NUMBER 030924 1



CHANNEL NDB\_1 FILTER CH. CLASS 1000

TIME (MS)

PEAK DATA: 0.00 V @ 310.00 MS, 1.00 V @ 0.72 MS

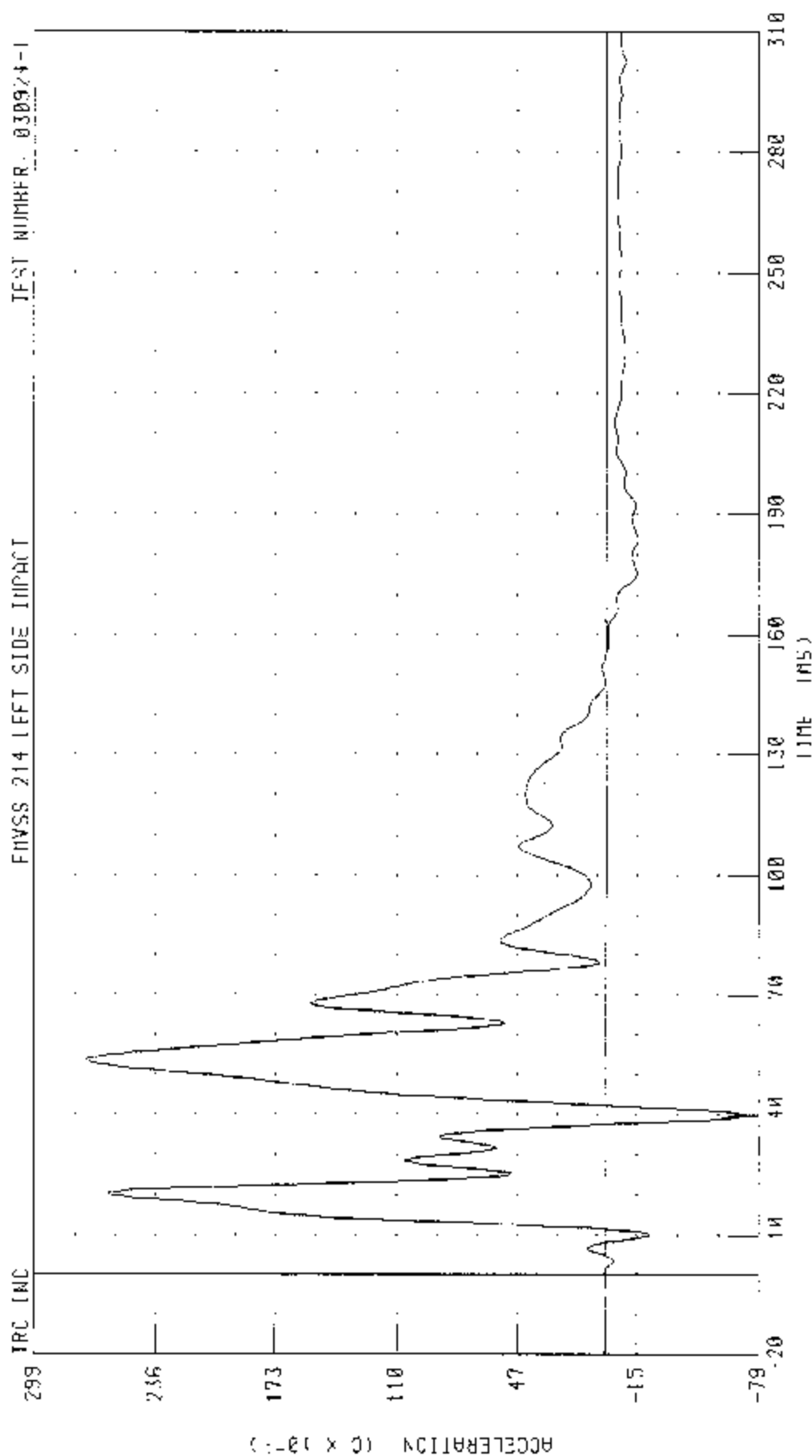
Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - FIR Filtered

55/26 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 -XUS R4338

DRIVER UPPER RIO Y AXIS ACCELERATION

IRC INC FHVSS 214 LEFT SIDE IMPACT TEST NUMBER: 030924-1



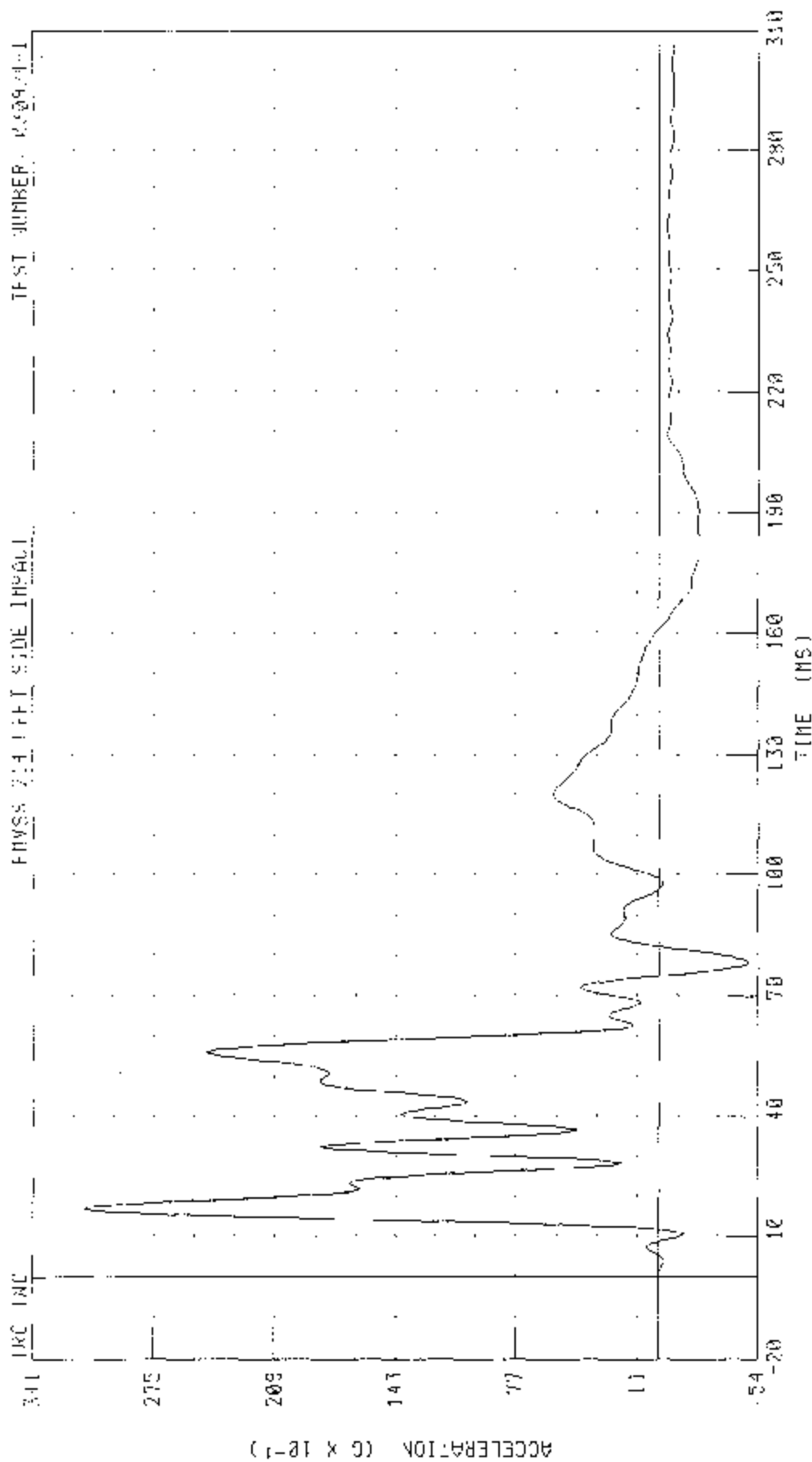
CHANNEL 1 URYC1 FILTER FIR 100

PECK DATA: 27 24 0 53 75 MS, 7.27 0 0 40 00 MS



55/28 654 50 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2004 LEXUS RX330

DRIVER LOWER RIB Y-AXIS ACCELERATION



CHANNEL LRY01 FILTER FIR 100

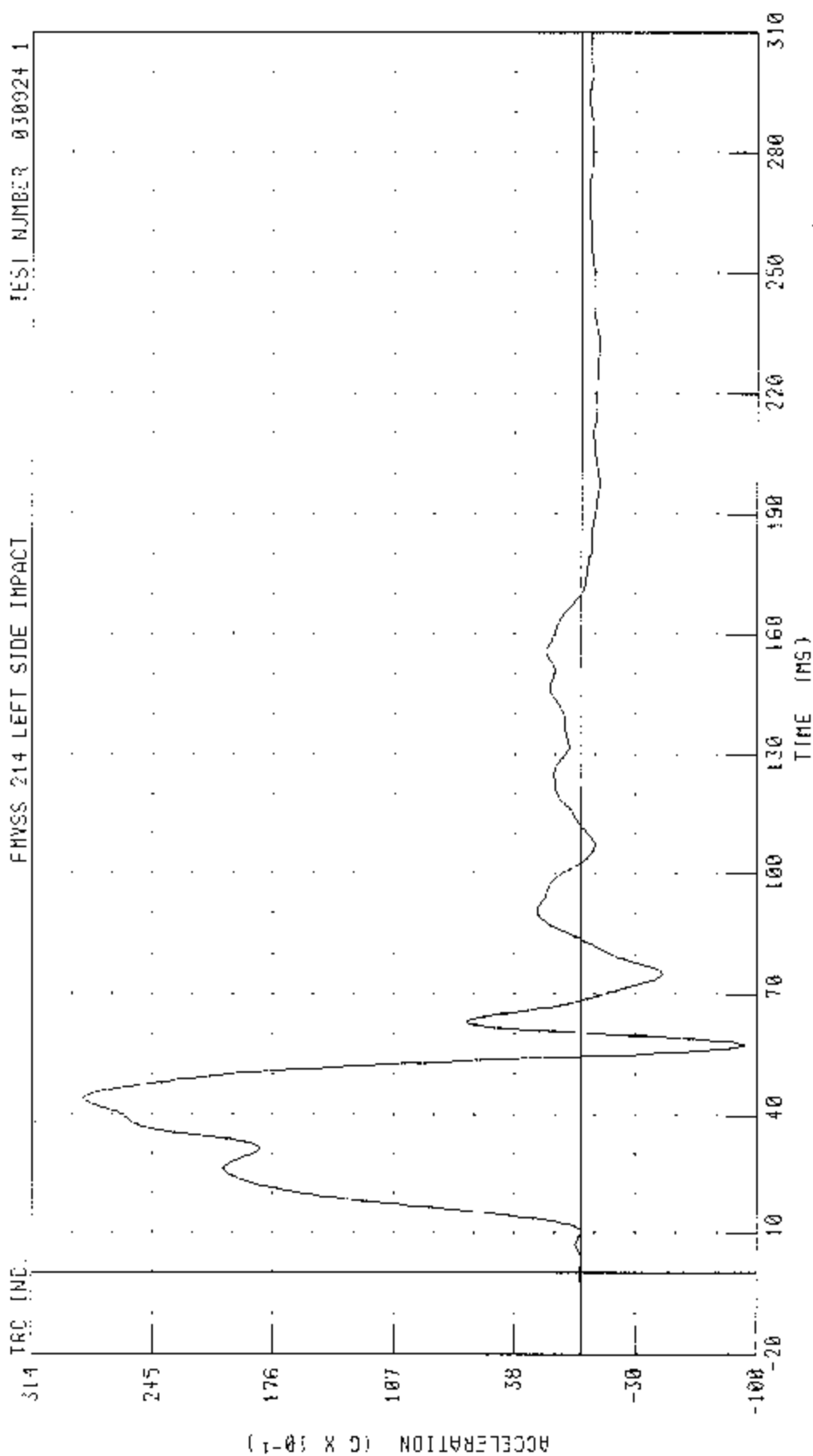
PEAK DATA 31 44 6 16 87 MS, -4 93 6 0 70 13 MS

55/28 KPH 90 DEGREE SHOE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

DRIVER LOWER SPINE Y-AXIS ACCELERATION

PHYS 214 LEFT SIDE IMPACT

TEST NUMBER 030924 1



CHANNEL 12V01 FILTER FIR 100

PEAK DATA: 76.44 G @ 43.75 MS. -9.34 G @ 57.50 MS

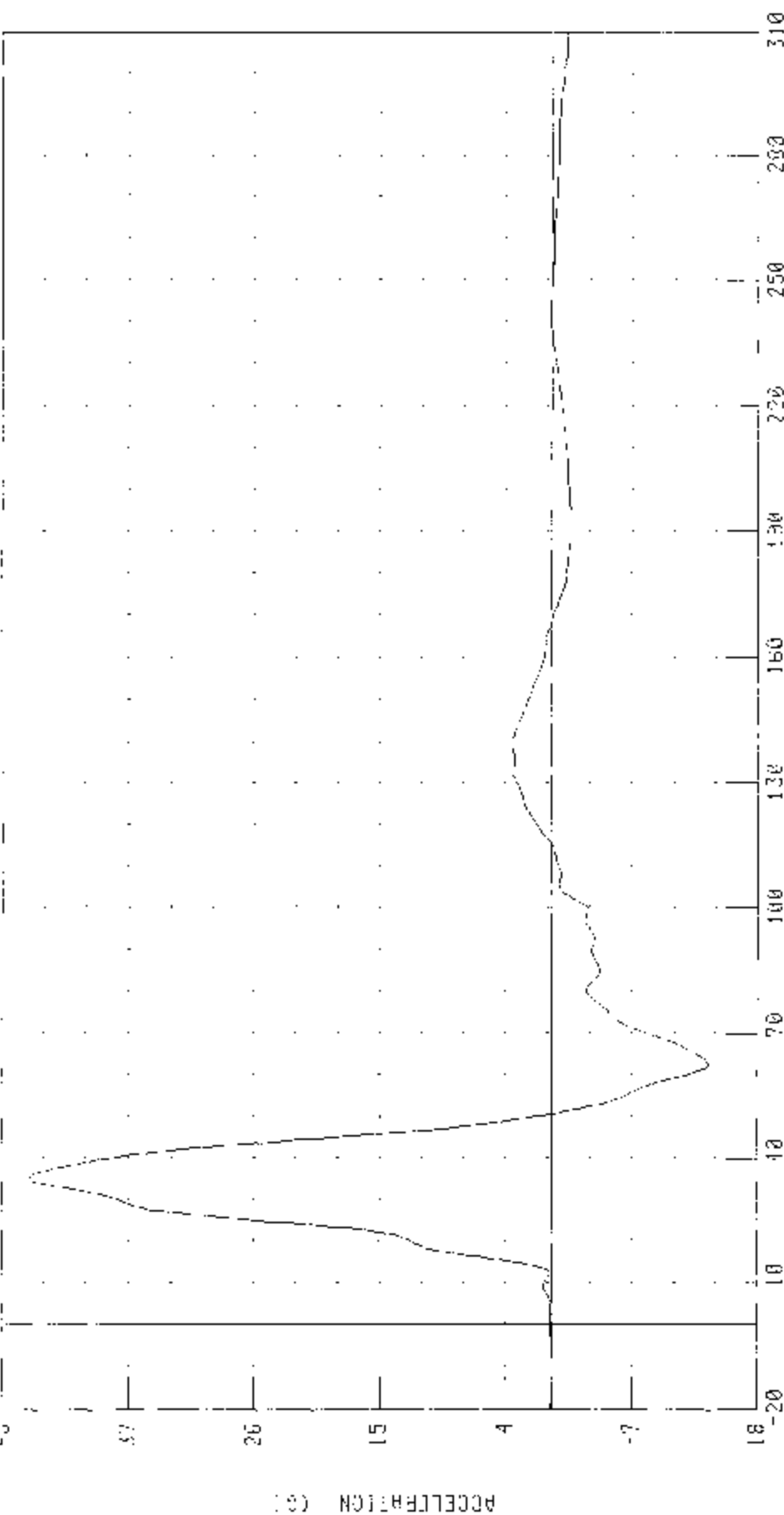
SHOCK TEST OF REAR SIDE IMPACT CRASHING AFFORDABLE GARAGE INTO LEFT SIDE OF 2004 LEXUS RX400

DRIVER SEAT AIR BAGS DEPLOYED

EVENT 214 LEFT SIDE IMPACT

TRC INC

TEST NUMBER: 030924-1



CHANNEL: PEVVC FILTER: 2'R 100

TIME INSE

PE44 DATA 45 P2 3 9 30 00 MS. 13.69 0 0 02 00 MS

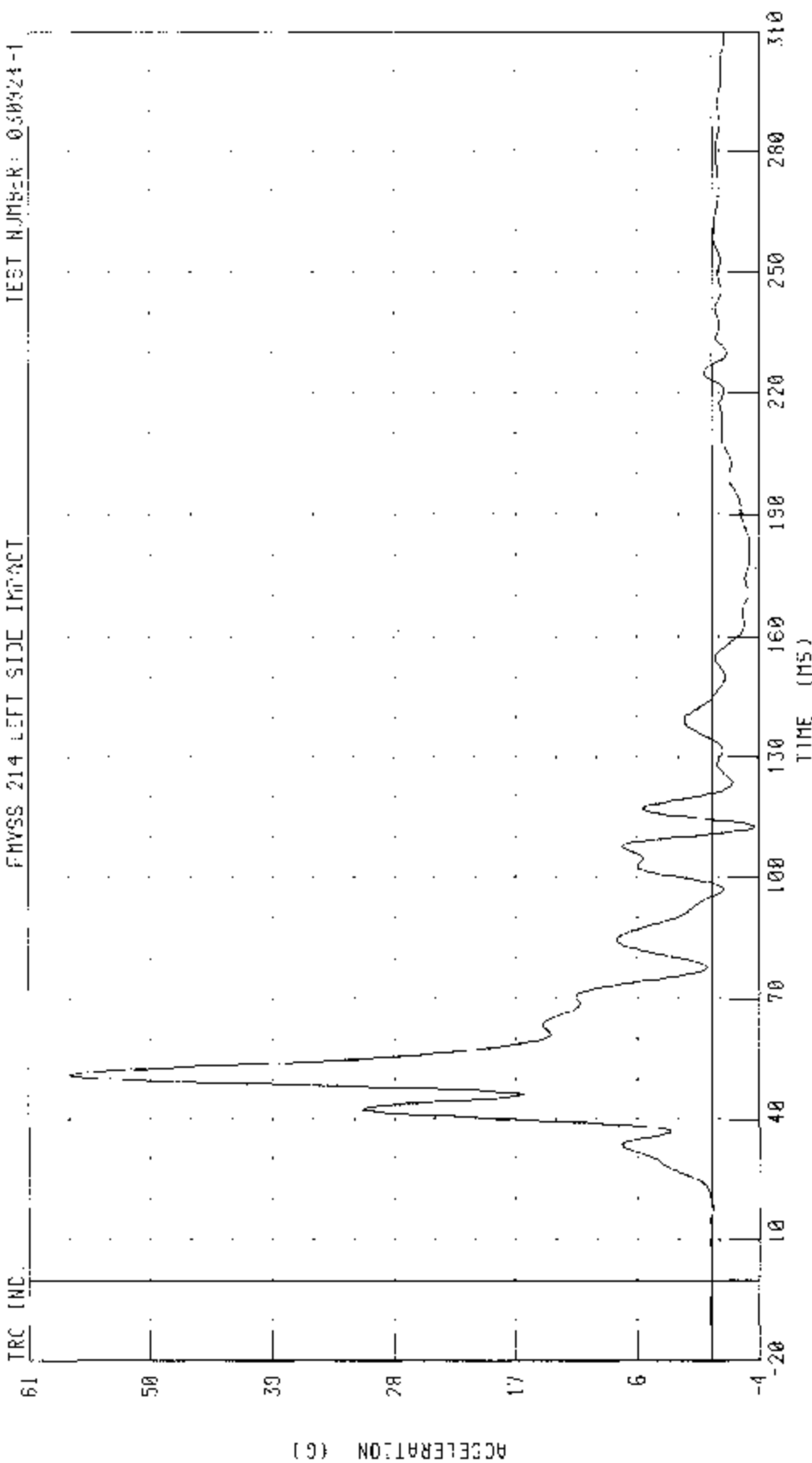
55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER UPPER RIB Y-AXIS ACCELERATION

TEST NUMBER: 030924-1

FMVSS 214 LEFT SIDE IMPACT

TRC INC.

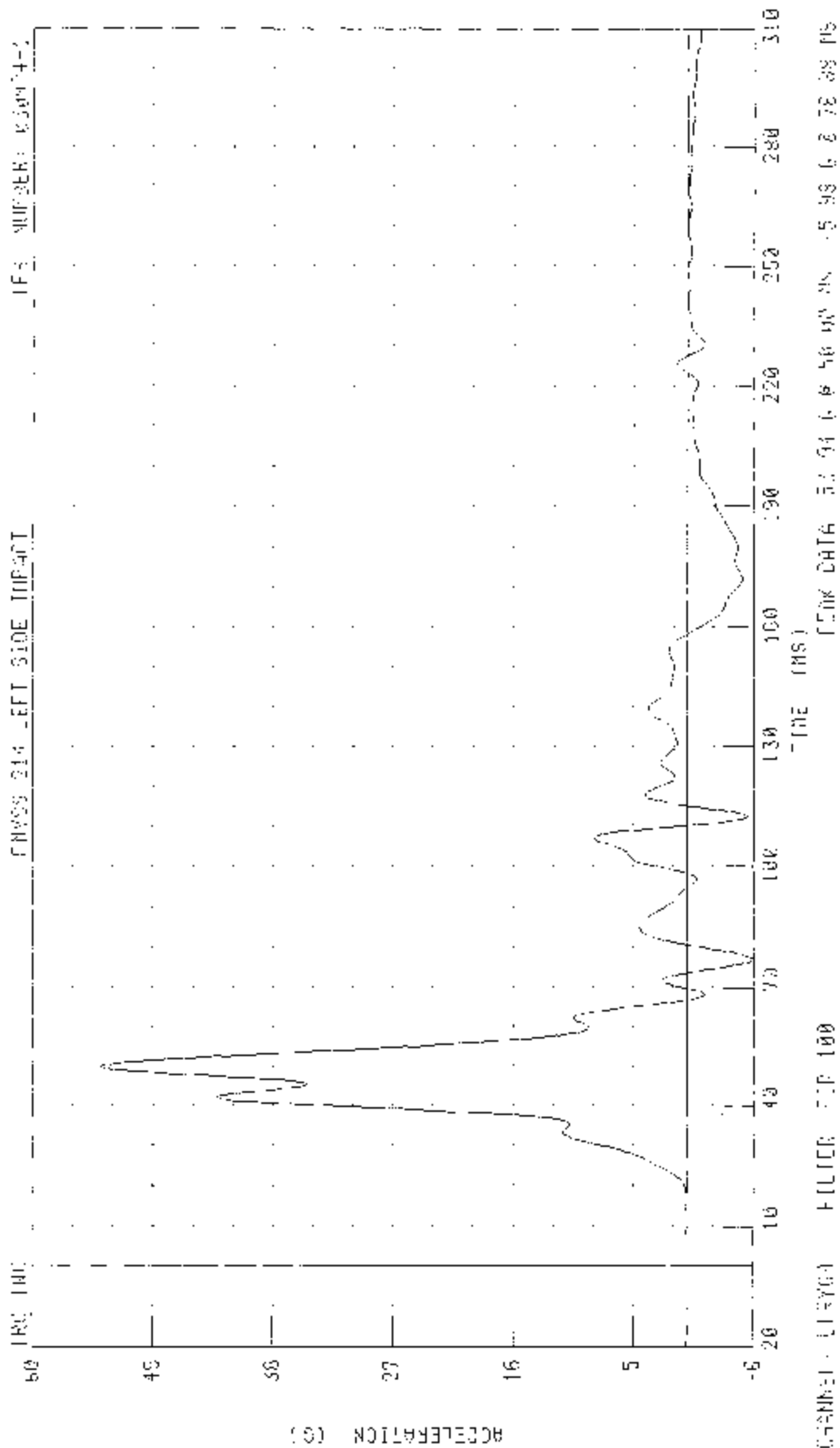


CHANNEL: LURVCH FILTER: FIR 100

PEAK DATA: 50.24 0.0 51.25 MS, -3.97 0.0 112.50 MS

5/2/80 2PM 40 DEGREE SIDE IMPACT FROM 90 DEGREE DARTER INTO LEFT SIDE OF 2004 L-200S EX-3

LEFT REAR PASSENGER LOWER PIVOT HOLE ACCELERATION

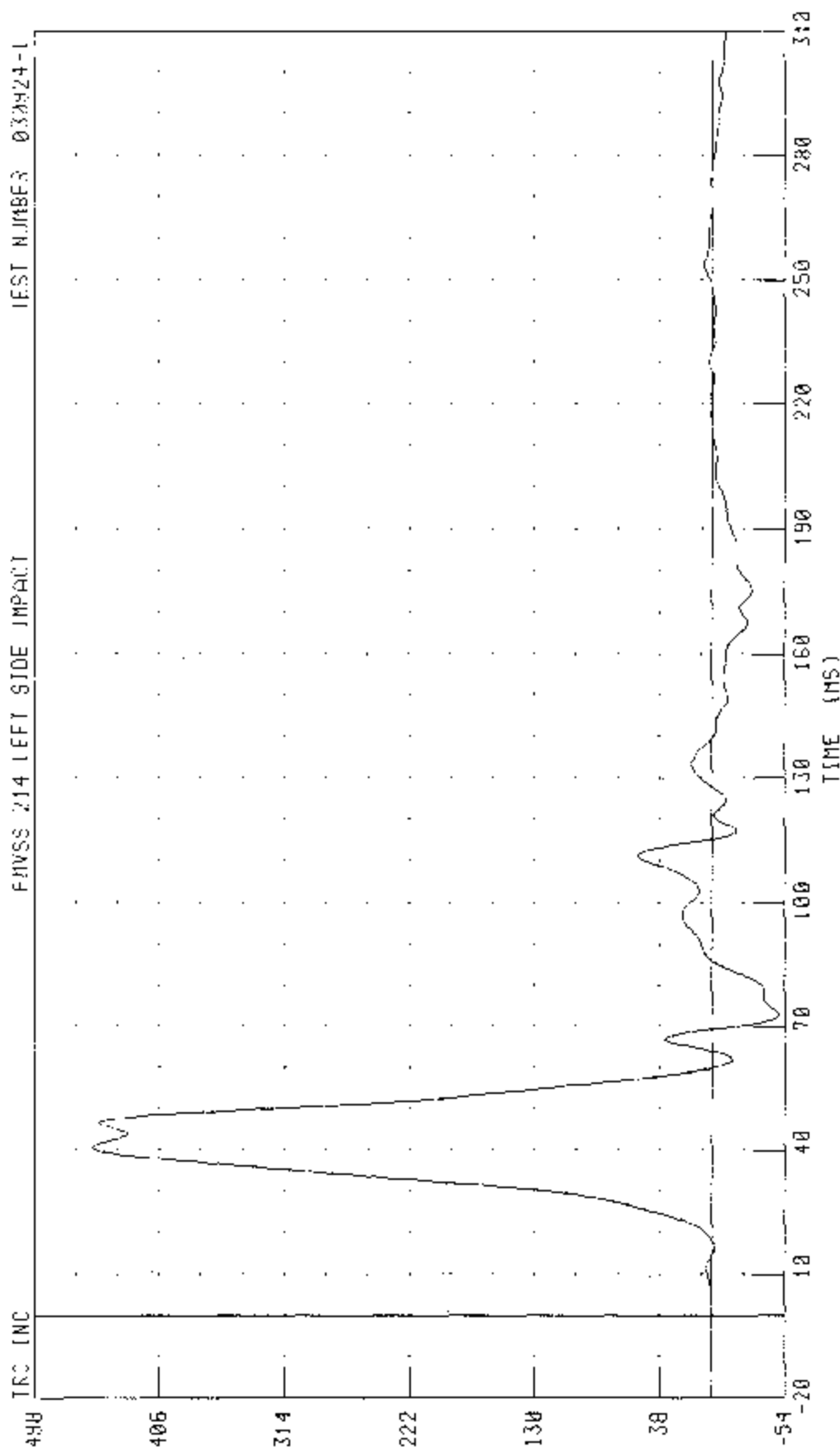


55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION

TEST NUMBER 030924-1

FMVSS 214 LEFT SIDE IMPACT



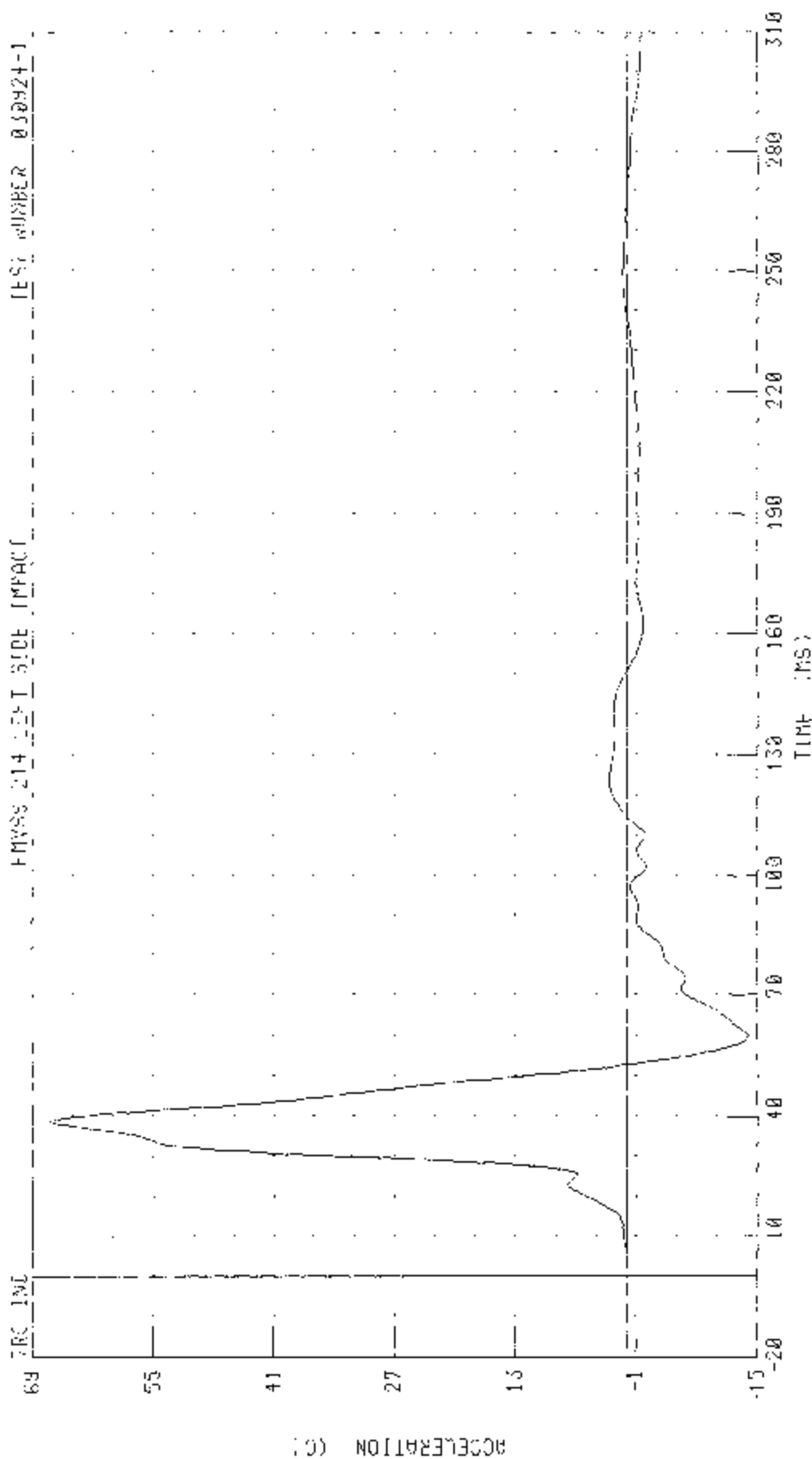
CHANNEL : T12Y64 FILTER FTR 130

PEAK DATA 45 53 0 0 40 63 MS; -4 98 0 0 73 13 MS

55/20 KPH 50 CGRDE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER PELVYS Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT TEST NUMBER 030924-1

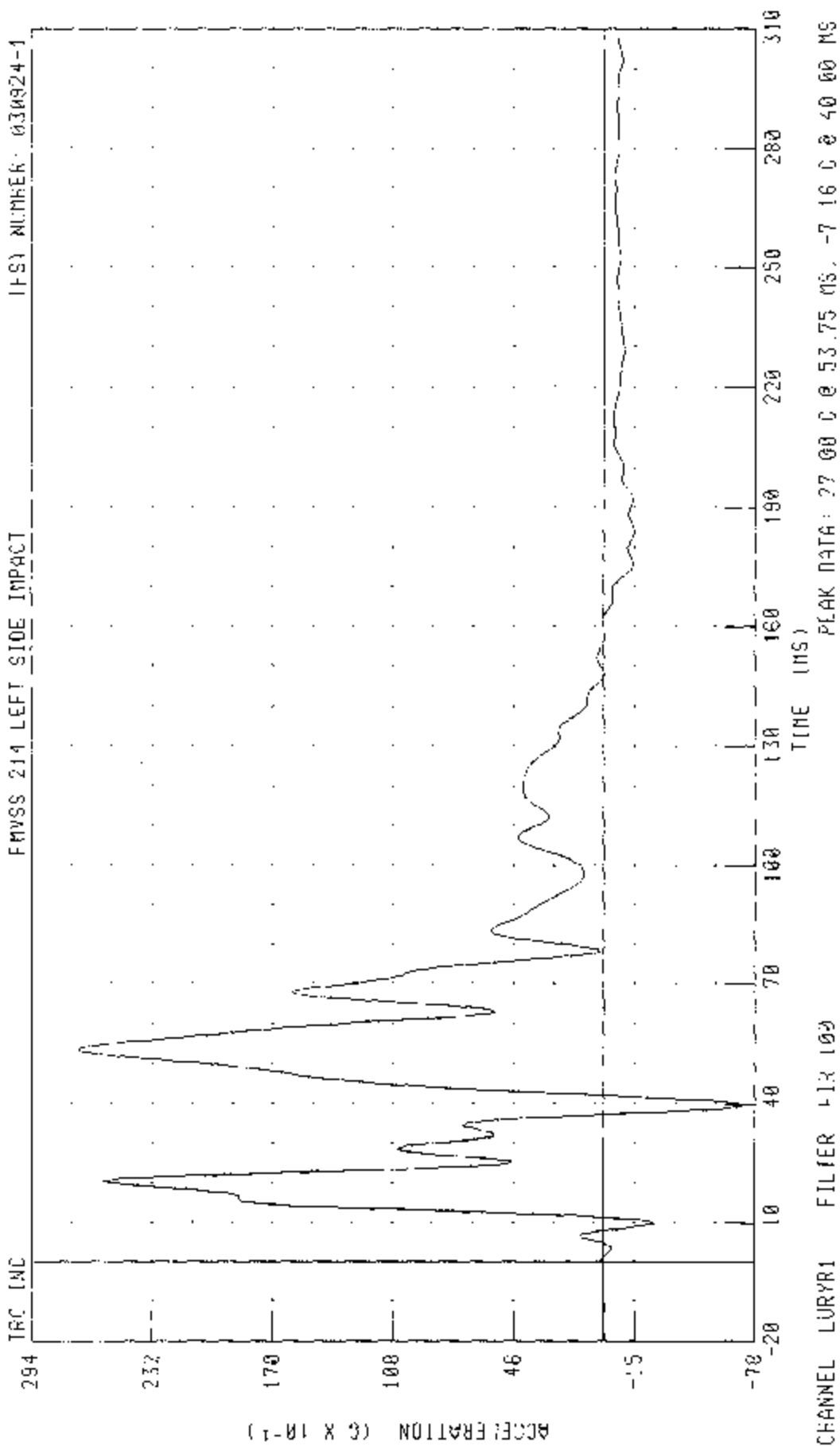


CHANNEL FEVYC4 FILTER FIR 100

PEAK DATA 26.87 G @ 38.75 MS; -13.91 G @ 62.00 MS

55/78 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

DRIVER UPPER RIB X-AXIS REDUNDANT ACCELERATION

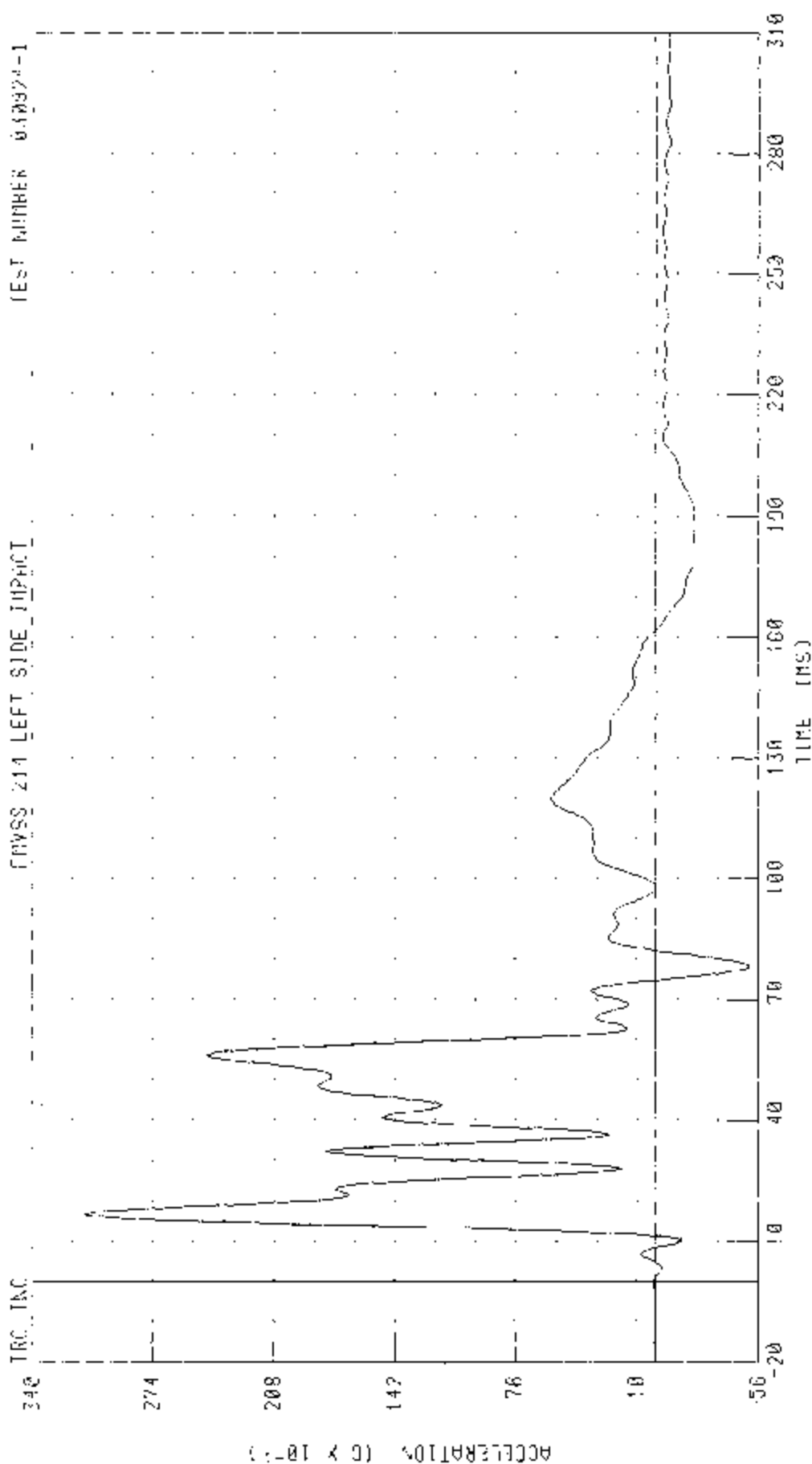




55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

DRIVER LOWER RIB Y-AXIS REDUNDANT ACCELERATION

CRVSS 214 LEFT SIDE IMPACT TEST NUMBER 030924-1



CHANNEL: CRY91 FILTER FIR 100

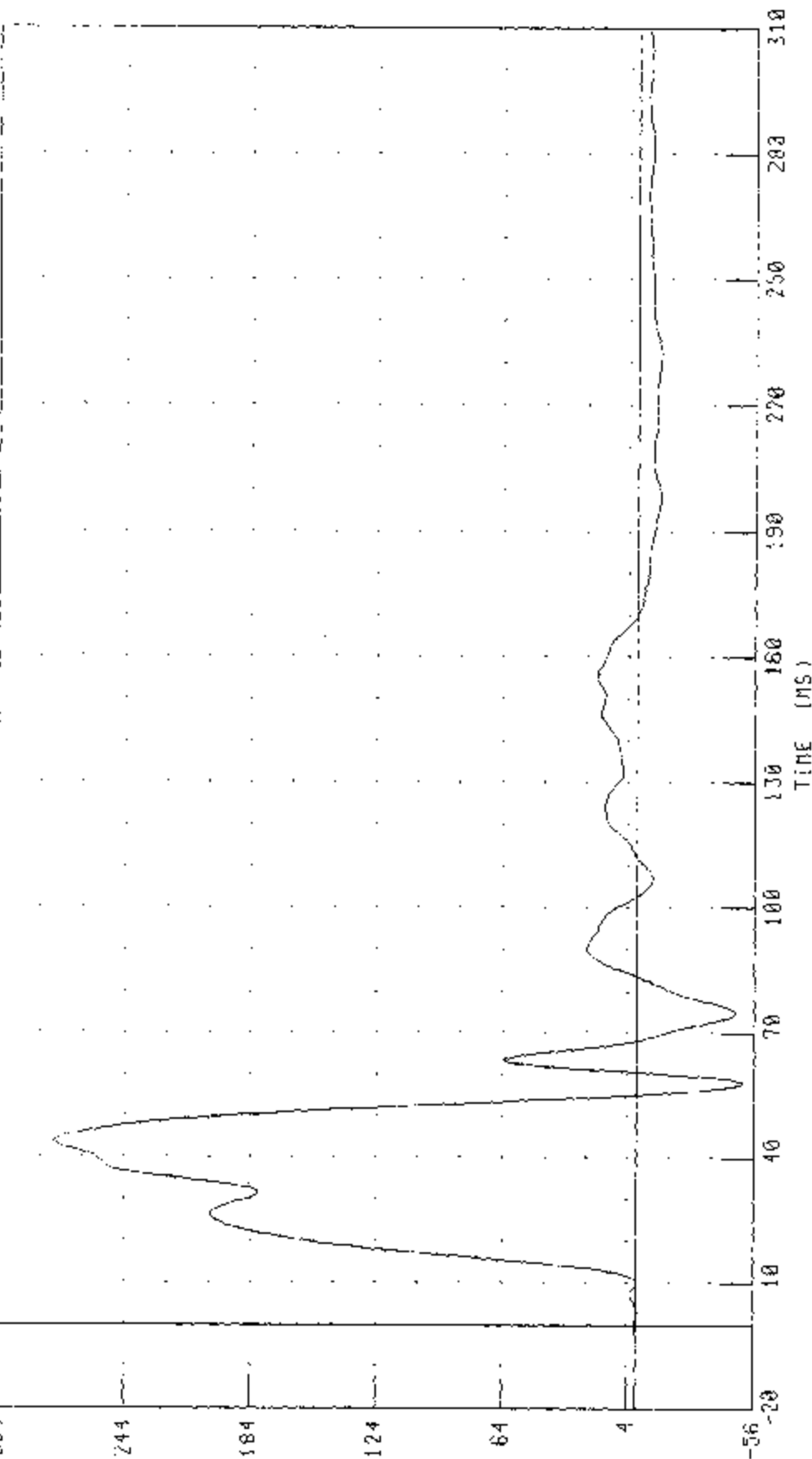
PEAK DATA 31 30 G @ 100 MS. 5 12 G @ 76 13 MS

55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BAR) INTO LEFT SIDE OF 2004 LEXUS RX330  
 DRIVER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION

TEST NUMBER 030924-1

FMVSS 214 LEFT SIDE IMPACT

IRG INC



CHANNEL T12Y21 FILTER FIR 100

PEAK DATA 27.71 C @ 43.75 MS, -5.12 G @ 58.13 MS

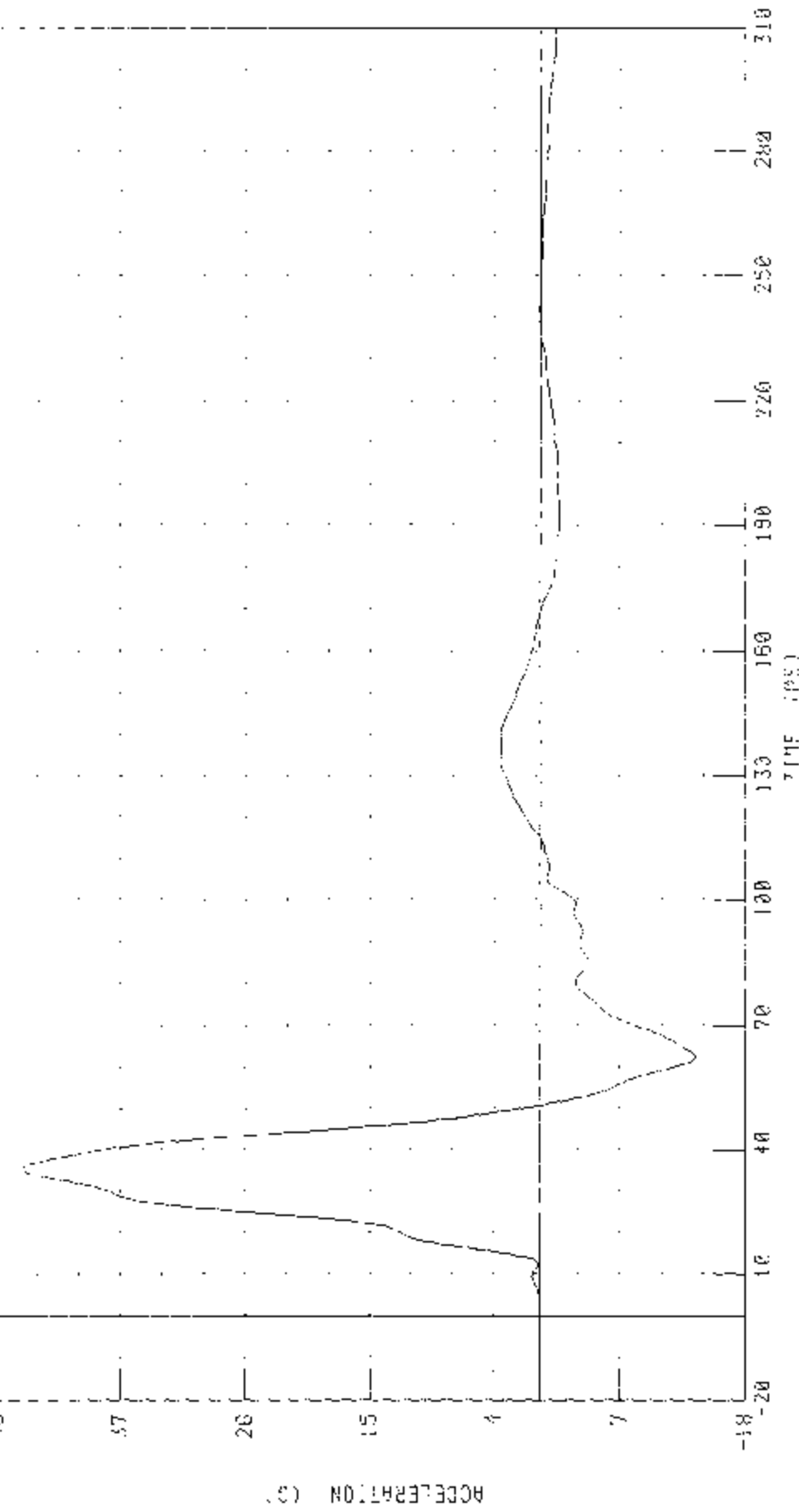
55.28 KHz 50.000000 Hz 100.000000 Hz 100.000000 Hz 100.000000 Hz 100.000000 Hz 100.000000 Hz 100.000000 Hz 100.000000 Hz 100.000000 Hz

DRIVER PULSES (4000 HERTZ) 4000 HERTZ

TEST NUMBER 400924-1

PHYSICAL UNIT INCHES

INCHES



CHANNEL: 25V100 FILTER: FIR 100

FLUX DATA 45 33 6 0 35 00 MS. -13 67 0 0 62 50 MS

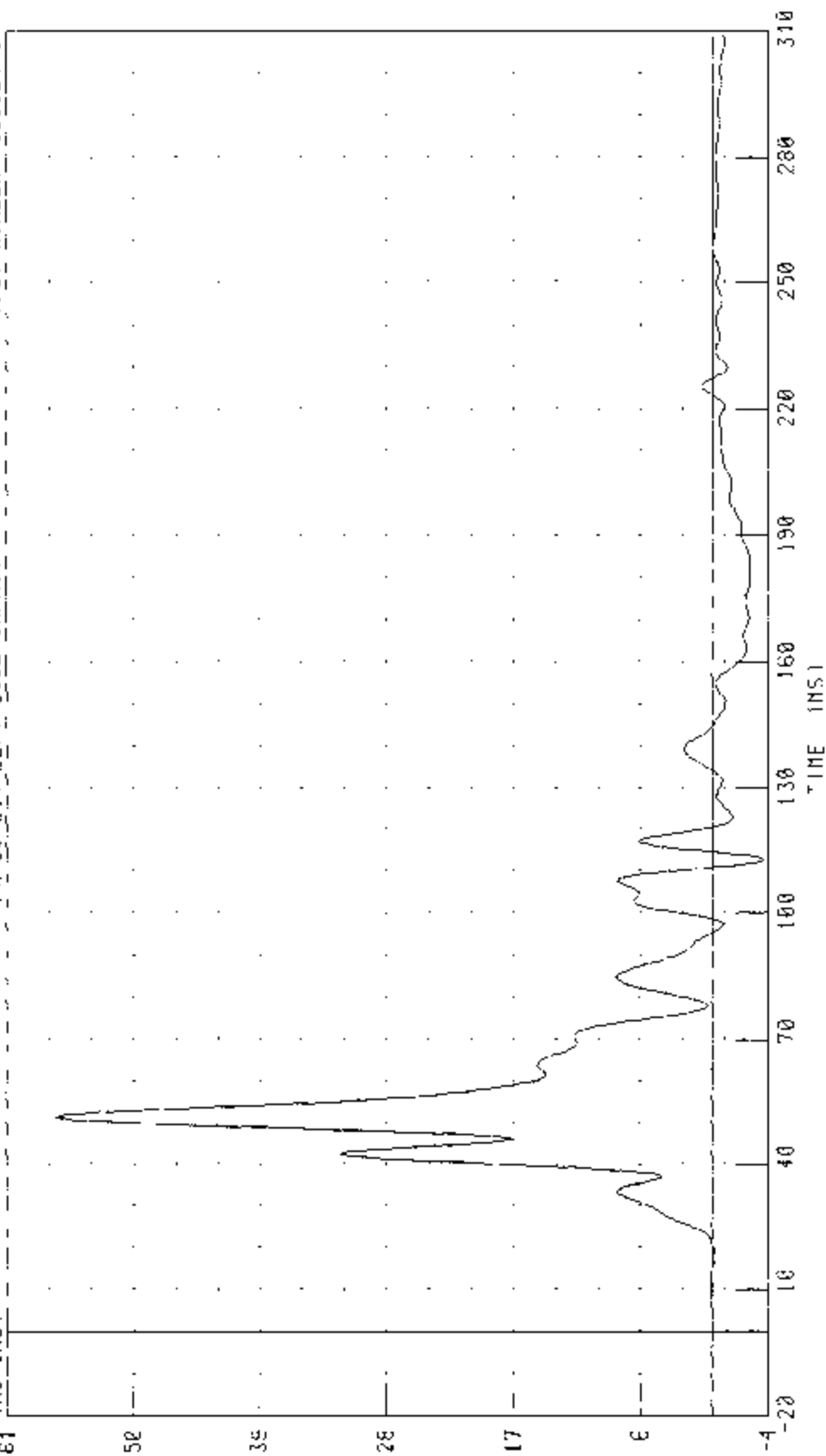
55/26 MPH 40 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330H

LEFT REAR PASSENGER UPPER RIB Y-AXIS REDUNDANT ACCELERATION

TEST NUMBER: 030024 1

IMPSS 214 LEFT SIDE IMPACT

TRC IMC



CHANNEL: LURYR4 FILTER: FIR 100

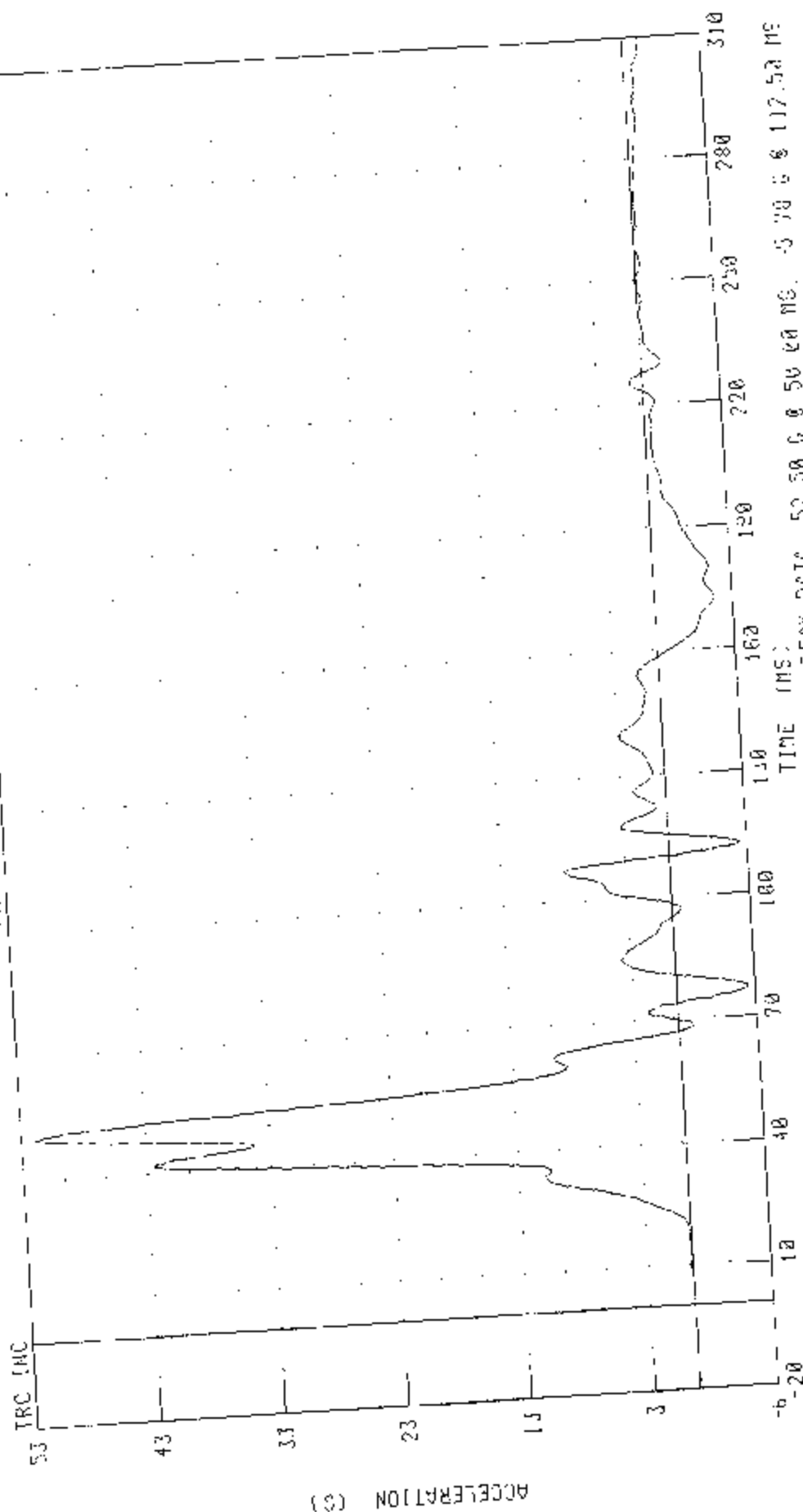
PEAK DATA: 57.13 G @ 51.25 MS, -4.30 G @ 112.50 MS

50/79 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE CARRIER) INTO LEFT SIDE OF 2404 LEXUS RX330

LEFT REAR PASSENGER LOWER RIB Y AXIS REDUNDANT ACCELERATION

TEST NUMBER: 030924-1

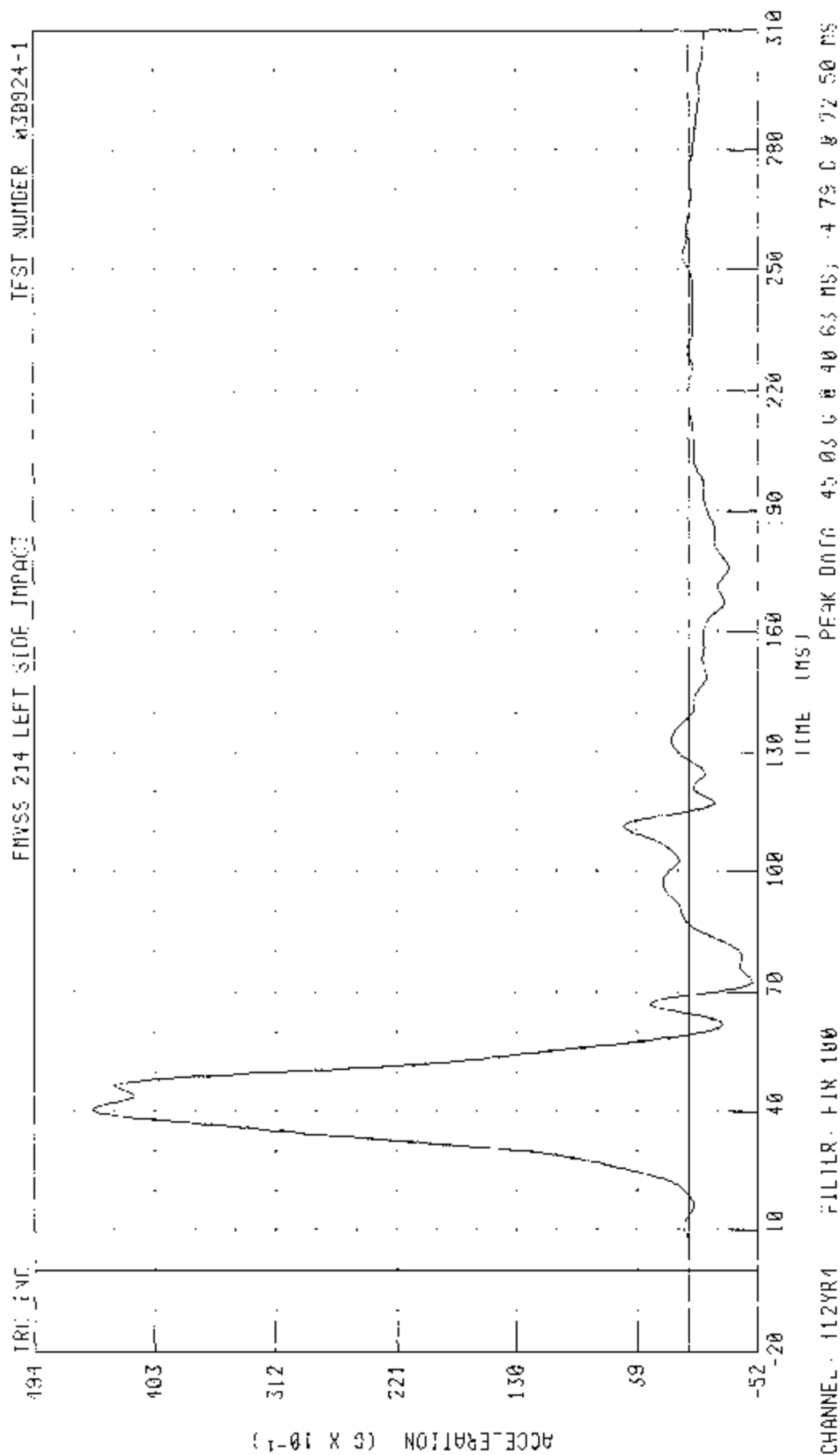
FRVS 214 LEFT SIDE IMPACT



CHANNEL 118YR4 FILTER FIR 100

55.2R KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330

LEFT REAR PASSENGER LOWER SPINE Y AXIS REDUCED ACCELERATION

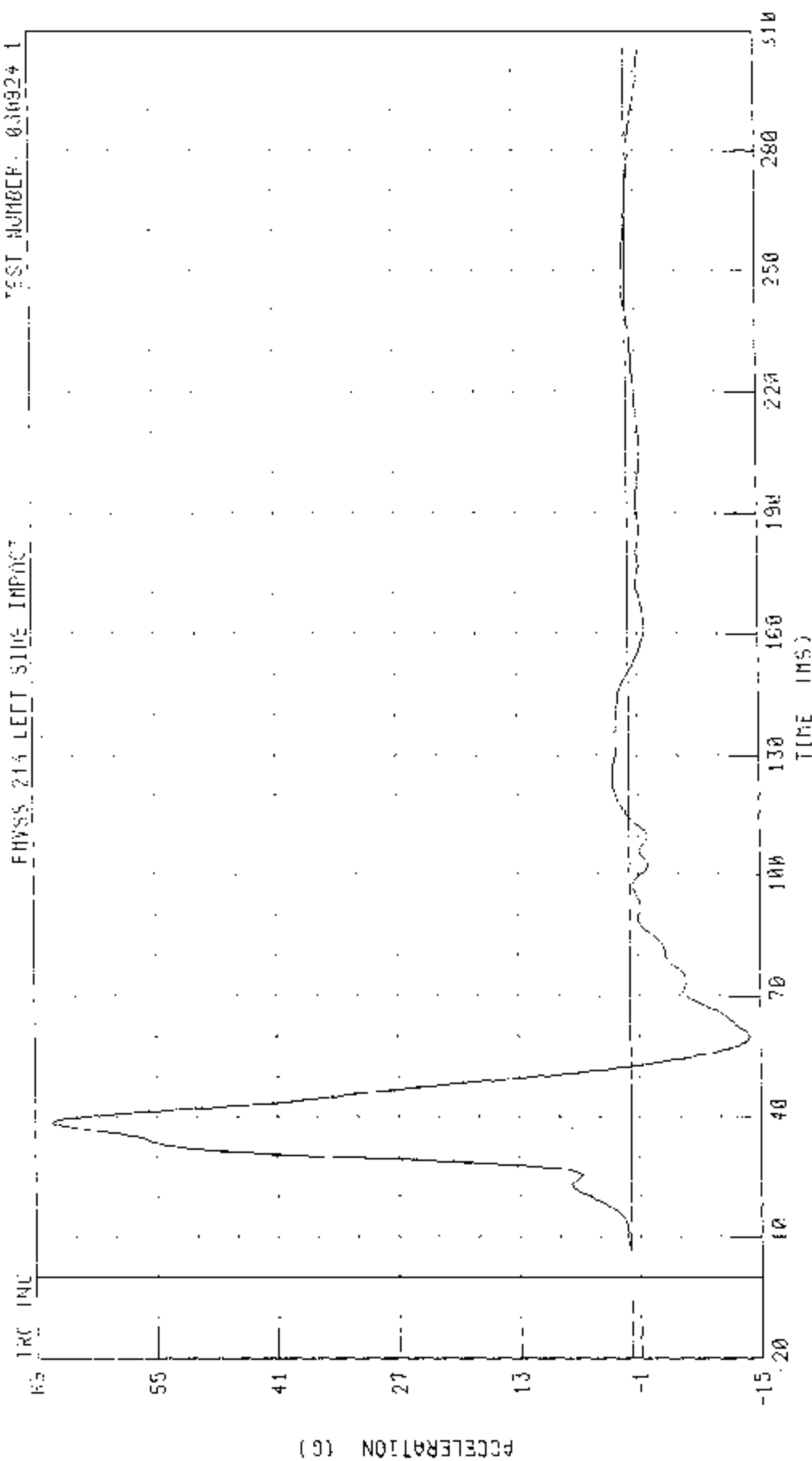


532728 ZP00 50 DEGREE STOP IMPACT INVOLVING CAPTURABLE BARRIER) INTO LEFT SIDE OF 2004 LEXUS RX330H

LEFT REAR PASSENGER PELVIS Y-AXIS RECONSTRUCT ACCELERATION

TEST NUMBER: 030924-1

PHYS 214 LEFT SIDE IMPACT



CHANNEL PEVYR4 FILTER FIR 100

PEAK DATA 67 00 0 33 75 MS, -13.70 G @ 90 00 MS

## Appendix C

### SID HII Configuration and Performance Verification Data



Summary  
SID HIII Pre-Test and Post-Test Calibration  
Configured For Left Side Impact

Date: 09/24/03 TRC Inc. Test Number: S/N055 & S/N906

Laboratory Technician: Jack Willeke

Test Parameter	Specification	SID HIII 055		SID HIII 906	
		Pre-Test	Post-Test	Pre-Test	Post-Test
SH - Seated Height (mm)	889-909	N/A <sup>1</sup>	909	901	904
RH - Rib Height (mm)	502-520	N/A <sup>1</sup>	511	511	506
HP - Hip Pivot Height (mm)	99 ref	N/A <sup>1</sup>	99.1	99.1	99.1
RD - Rib from Back Line (mm)	229-241	N/A <sup>1</sup>	223 <sup>2</sup>	229	229
KH - Knee Pivot from Back Line (mm)	511-526	N/A <sup>1</sup>	525	513	525
KV - Knee Pivot to Floor (mm)	490-505	N/A <sup>1</sup>	492	496	491
HW - Hip Width (mm)	356-391	N/A <sup>1</sup>	366	370	384
Thorax Impacts					
Temperature (°C)	18.9-25.5	21.1	21.7	21.1	21.1
Relative Humidity (%)	10-70	41.0	31.0	54.0	31.0
Probe Speed (m/s)	4.27-4.33	4.29	4.31	4.26	4.32
Upper Rib (g's)	37-46	40.9	38.3	37.5	42.6
Lower Rib (g's)	37-46	39.8	37.2	37.8	43.3
Lower Spine (g's)	15-22	19.3	17.0	16.1	19.7
Pelvis Impacts					
Temperature (°C)	18.9-25.5	21.1	21.1	21.1	21.1
Relative Humidity (%)	10-70	40.0	22.0	55.0	31.0
Probe Speed (m/s)	4.27-4.33	4.27	4.31	4.28	4.31
Pelvis (g's)	40-60	44.2	44.6	52.6	45.8

<sup>1</sup> Pre-test external dimensions were not collected.

<sup>2</sup> Did not meet specifications post-test.

## Calibration Test Results

### Pre-Test

SID HIII: 055

Configured for Left Side Impact

External Dimensions:	External dimensions were not taken.
Lateral Head Drop Test:	The head passed all lateral drop test requirements.
Lateral Neck Test:	The neck passed all impact test requirements.
Lateral Thorax Impact Test:	The thorax passed all impact test requirements.
Lumbar Flexion Test:	The dummy met the lumbar flexion test requirements.
Abdominal Compression Test:	The abdomen met the compression test requirements.
Pelvis Impact Test:	The lateral pelvis passed all impact test requirements.
Thoracic Shock Absorber Test:	The thoracic shock absorber was tested on September 15, 2003 for a previous calibration series.

## TRANSPORTATION RESEARCH CENTER INC.

## LATERAL HEAD DROP TEST

HYBRIDI III SID DUMMY

22-SEP-03

## LEFT SIDE CONFIGURATION

TRC INC. TEST NO. HL05508C 572M SID/HIII SN055 HEAD CAL08

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6 deg. C	21.44 deg. C
RELATIVE HUMIDITY	10 - 70 %	51.00 %
PEAK RESULTANT ACCELERATION	120 - 150 G	140.63 G
PEAK LONGITUDINAL ACCELERATION	15 G MAX	-9.39 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

*V. F. Watter*

RUN NUMBER: 092703.1859;2

572N SID/HIII DUMMY CALIBRATION -- 35 DEGREE LEFT LATERO HEAD DROP

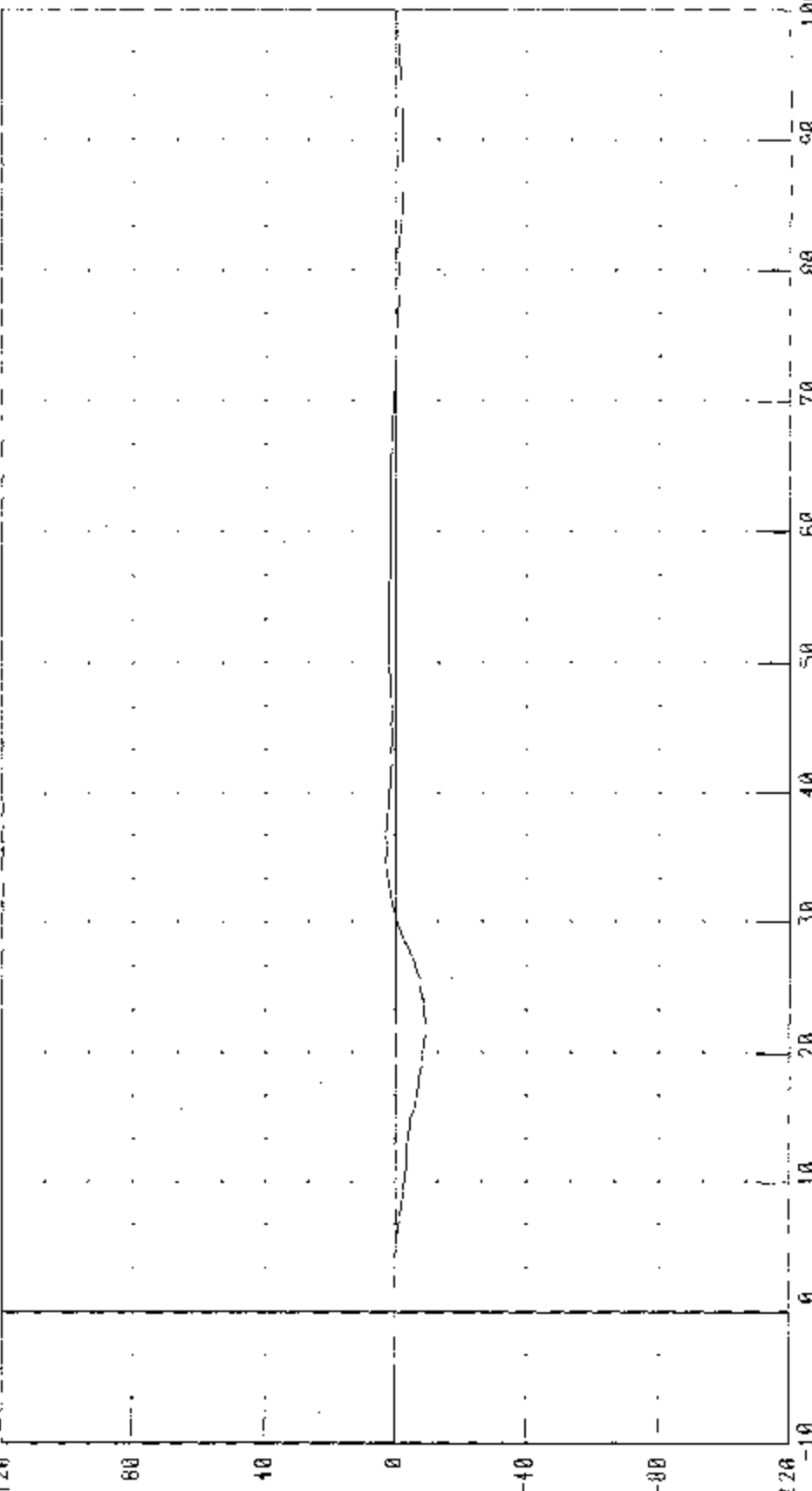
HEAD ACCELERATION X AXIS

RUN NUMBER: 092903 1208,2

572N SID/HIII SN055 HEAD CAL2B

TRC TEST NUMBER: HL05508C

120



ACCELERATION (G)

TIME (MS X 10<sup>-1</sup>)

PEAK DATA 2 90 0 0 3.52 MS; -9.39 G @ 2.16 MS

CHANNEL: HEDXG FILTER: CH. CLASS 1000

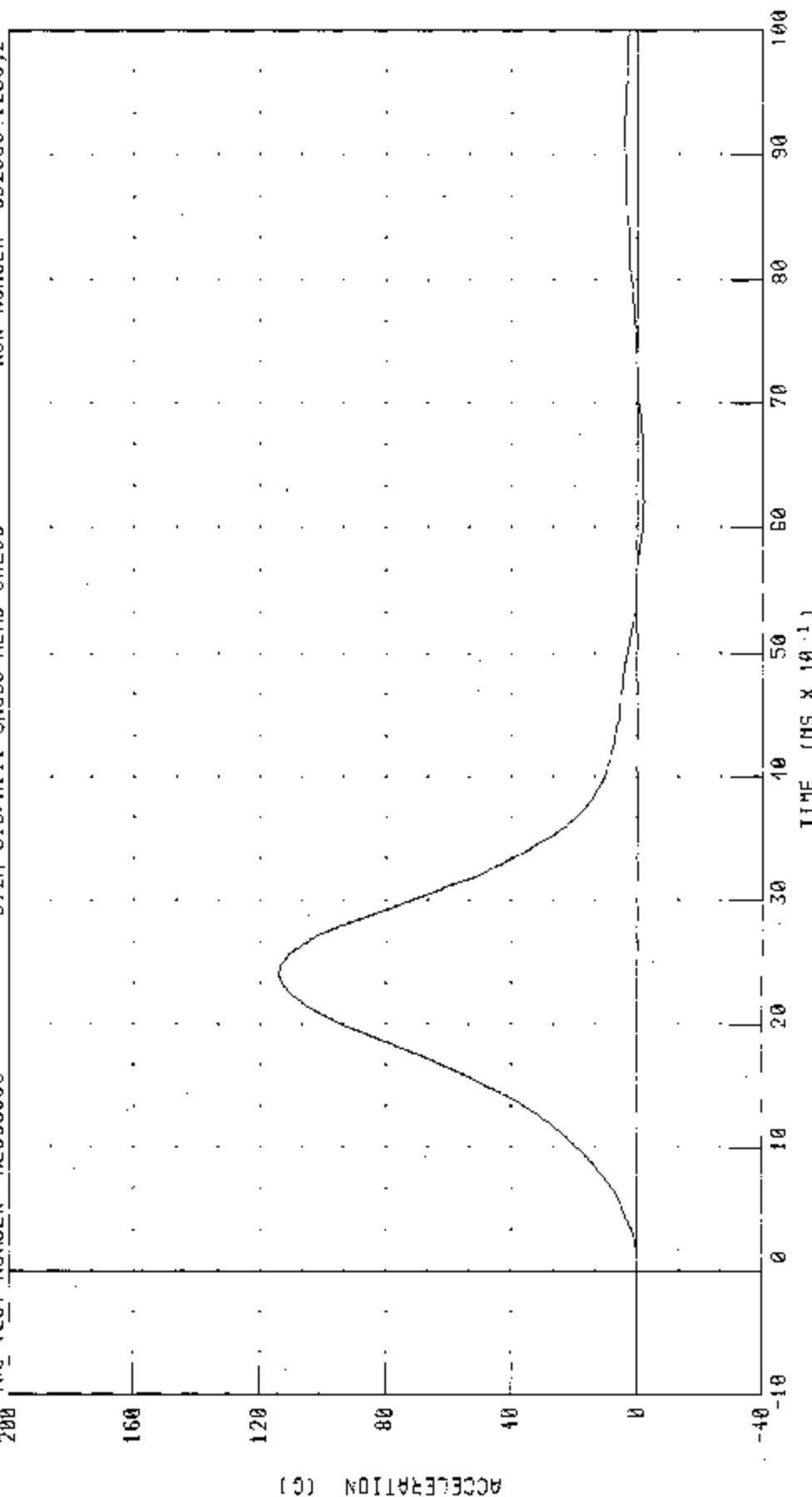
572M SID/HIII DUNNY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEAD ACCELERATION Y AXIS

TRC TEST NUMBER: JIL05508C

572M SID/HIII SN055 HEAD CAL08

RUN NUMBER: 092903.1200,2



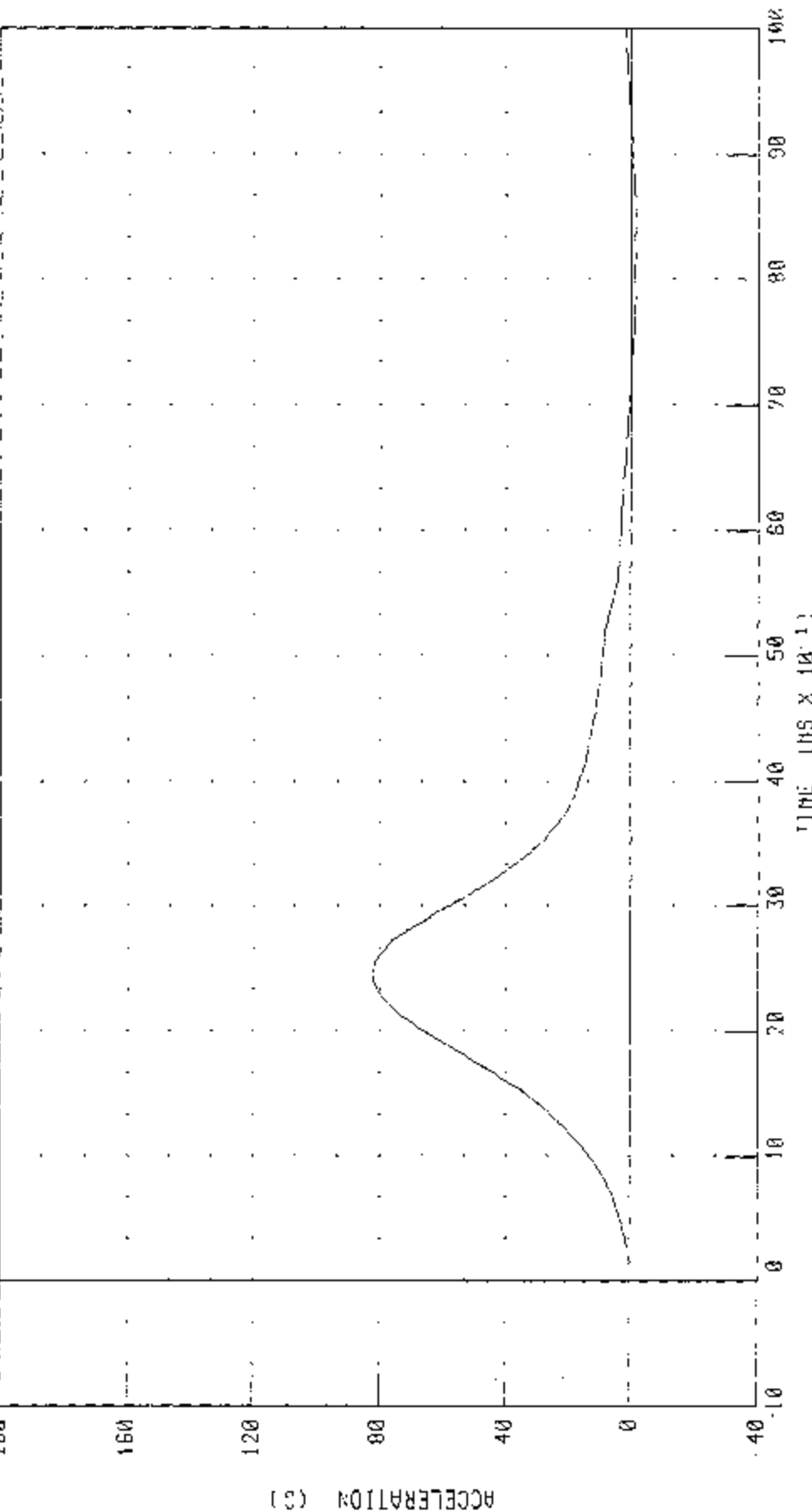
CHANNEL: HEDYC FILTER: CH. CLASS 1000

PEAK DATA: 114.03 G @ 2.40 MS; -1.96 G @ 6.24 MS

# 572M SID/HILL DUMKY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEAD ACCELERATION Z AXIS

TRC TEST NUMBER: HL05508C 572M SID/HILL SN055 HEAD CAL08 RUN NUMBER: 092903.1208.2



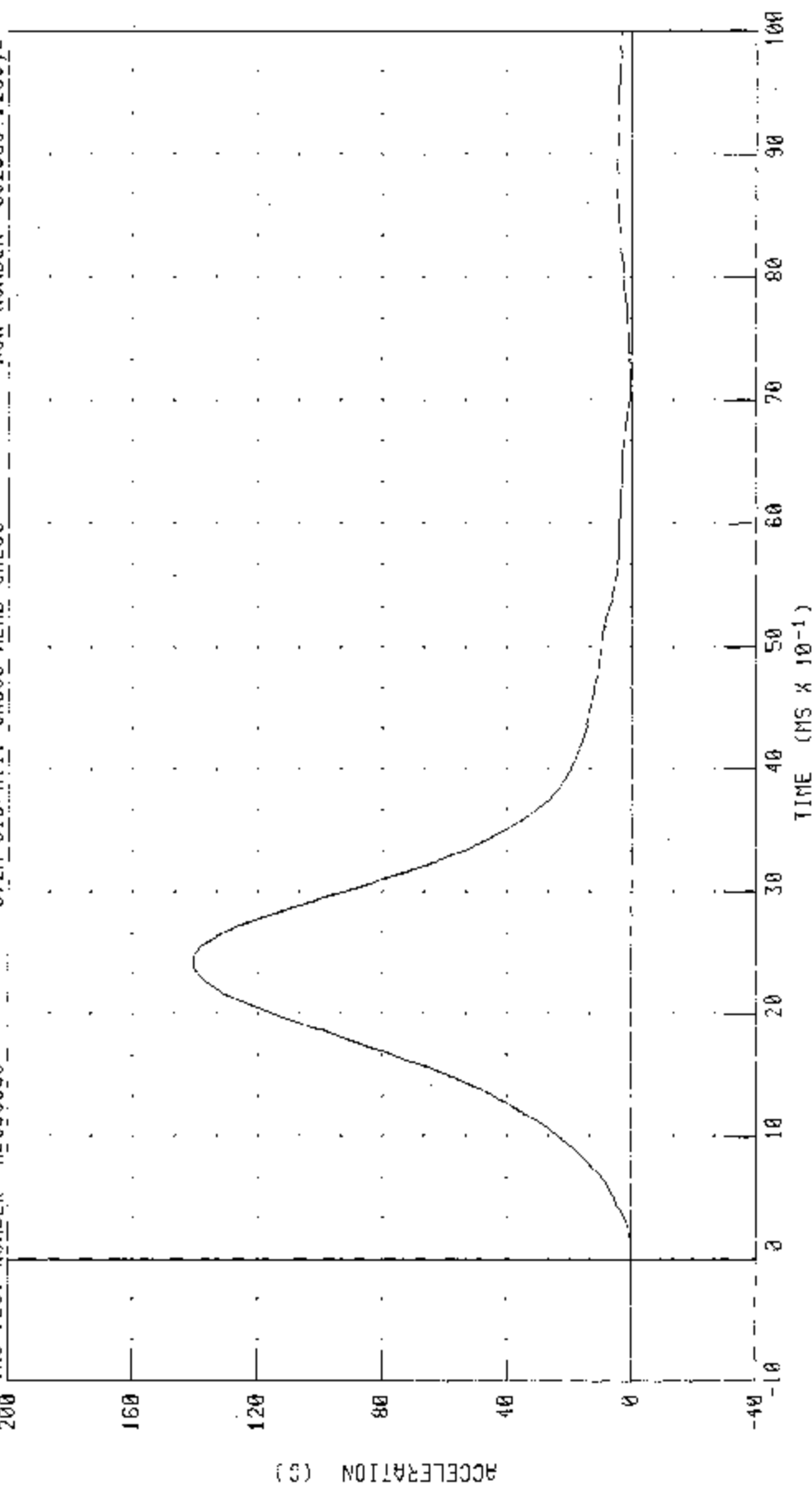
PEAK DATA: 82 06 0 0 2 48 MS; -1.44 0 0 0 32 MS

CHANNEL: HEADZG FILTER: CH. CLASS 1000

572M SID/H111 DUMMY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEAD RESULANT ACCELERATION

IRC TEST NUMBER: HL05508C 572M SID/H111 SN055 HEAD CAL00 RUN NUMBER: 092903.1200.2



CHANNEL: HEADRC

FILTER: CH. CLASS 1000

PEAK DATA: 140.63 G @ 2.40 MS, 0.01 G @ 0.48 MS

## TRANSPORTATION RESEARCH CENTER INC.

## LATERAL NECK TEST

HYBRIDIII SID DUMMY

23-SEP-03

## LEFT SIDE CONFIGURATION

TRC INC.

TEST NO. NL05508

572M SID/HIII SN055 NECK CAL08

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 deg. C	21.39 deg. C
RELATIVE HUMIDITY		10 - 70 %	49.00 %
IMPACT VELOCITY		6.89 - 7.13 M/S	7.06 M/S
INTEGRATED VELOCITY	10 MS	1.96 - 2.55 M/S	2.18 M/S
	20 MS	4.12 - 5.10 M/S	4.53 M/S
	30 MS	5.73 - 7.01 M/S	6.61 M/S
	40 - 70 MS	6.27 - 7.64 M/S	7.12- 7.28 M/S
MAXIMUM NIDSAGGITAL PLANE ROTATION		66 - 82 DEG.	71.71 deg.
ROTATION ANGLE DECAY TIME FROM PEAK TO ZERO		58 - 67 MS	59.52 MS
MAXIMUM MOMENT ABOUT OCCIPITAL CONDYLE		73.0 - 88.0 NM	86.27 NM
POSITIVE MOMENT DECAY TIME FROM PEAK TO ZERO		49 - 64 MS	53.84 MS
TIME OF MAXIMUM ROTATION (AFTER MAXIMUM MOMENT		2 - 16 MS	10.16 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN

*K. F. Watters*

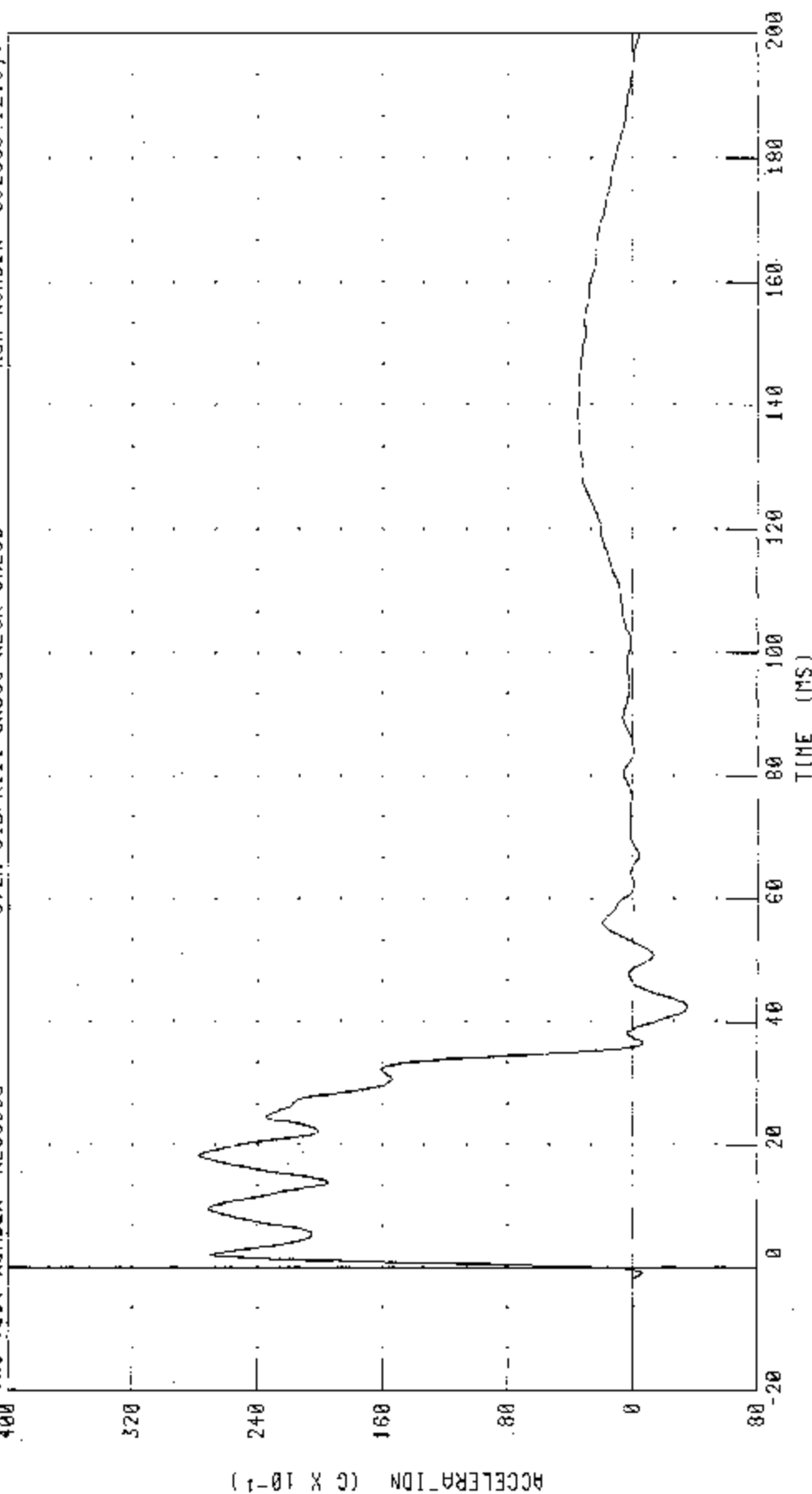
RUN NUMBER: 092703.1903;1



# 572M H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

PENDULUM DECELERATION

TRC TEST NUMBER: NL05508 572N SID/HIII SN055 NECK CAL08 RUN NUMBER 092903.1215.1



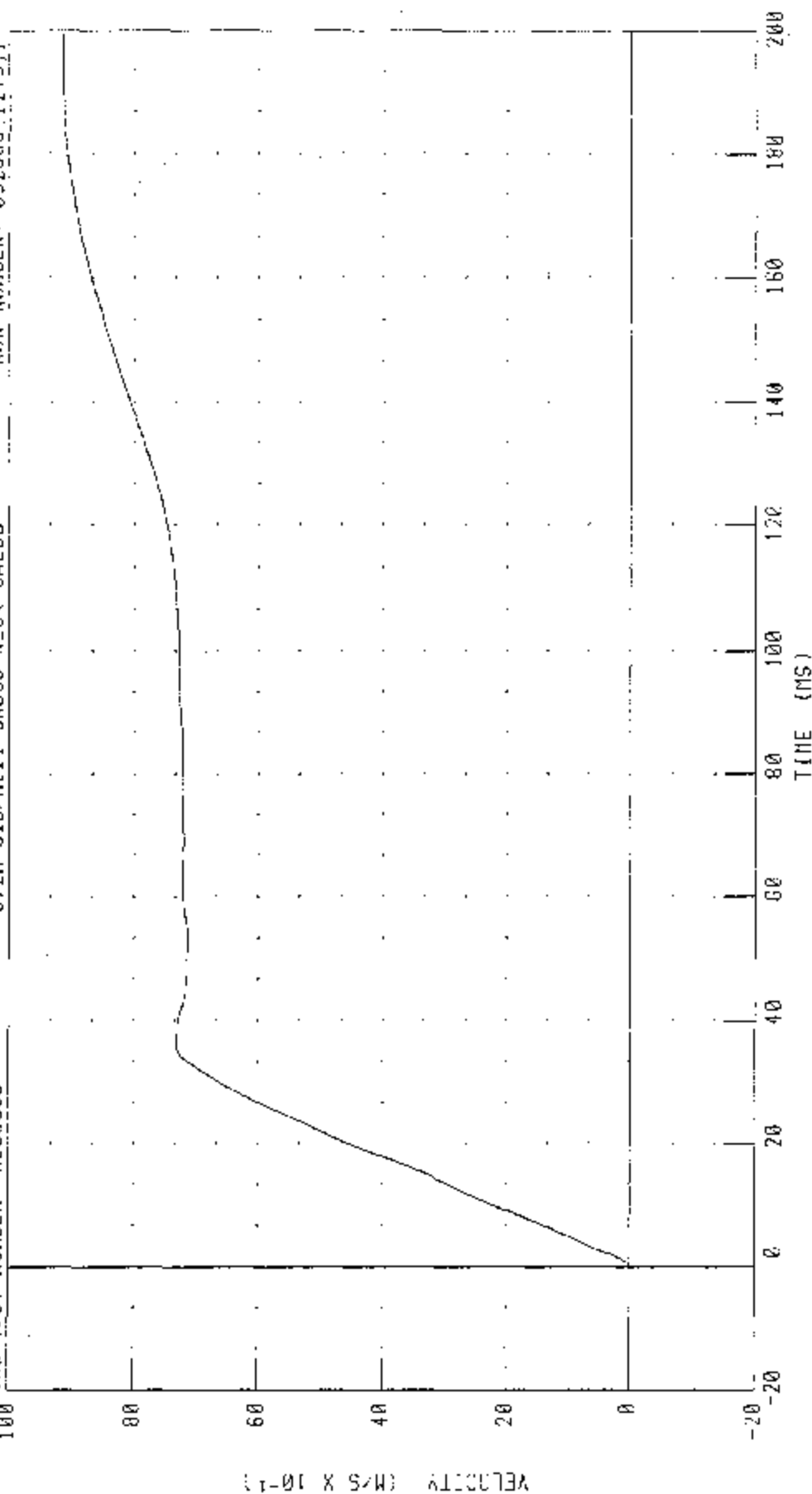
CHANNEL: PENXS FILTER: CH CLASS 180

PEAK DATA: 27.67 G @ 10.40 MS, -3.53 G @ 42.40 MS

# 572M H3/S10 DUMMY CALIBRATION LEFT LATERAL NECK TEST

INTEGRATED PENDULUM VELOCITY

IRC TEST NUMBER: NL05508 572M SID/H11 SN055 NECK CAL08 RUN NUMBER: 092903.1215.1



CHANNEL: PENXVI FILTER: CH CLASS 180

PEAK DATA 9 14 M/S @ 194 10 MS, -0 01 M/S @ 0 40 MS

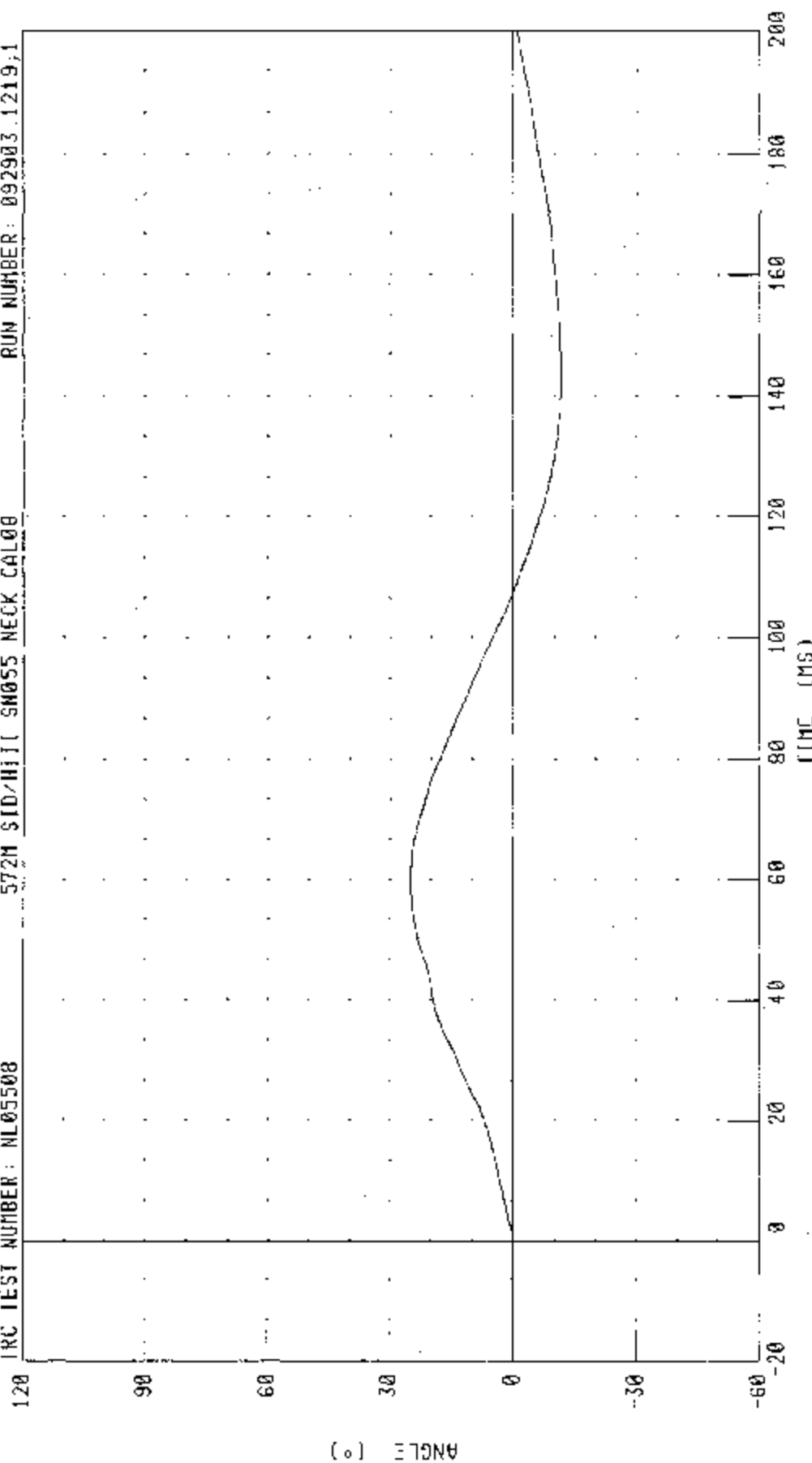
# 572M H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

ROTATION ABOUT BASE OF NECK

IRC TEST NUMBER: NL05508

572M SID/H3/SID SN055 NECK CAL08

RUN NUMBER: 092903.1219.1



CHANNEL: BETA

FILIER: CH CLASS 60

PEAK DATA: 25.03 ° @ 59.84 MS; -11.77 ° @ 143.52 MS

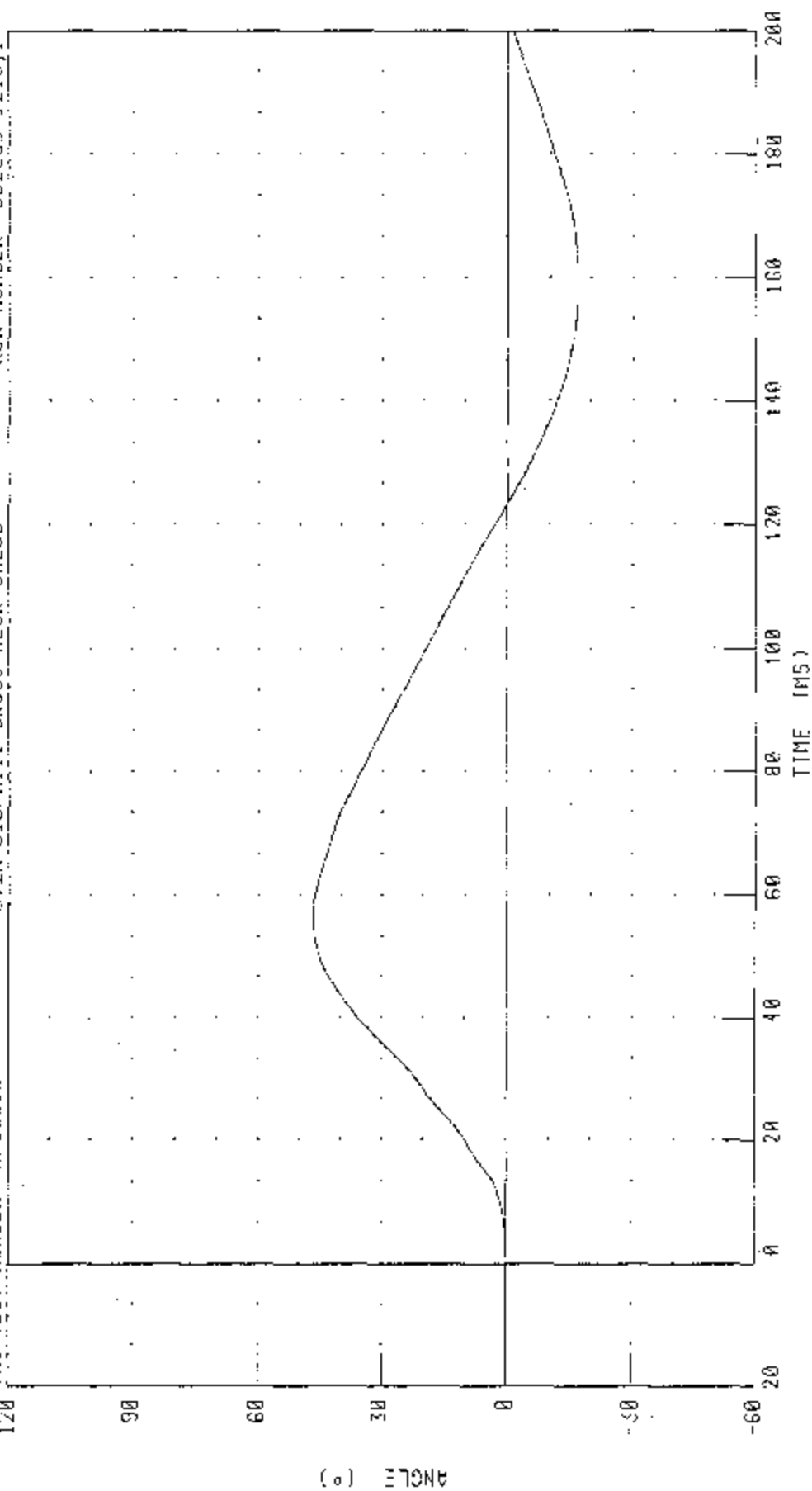
# 572N H13/S10 DUMPY CALIBRATION -- LEFT LATERAL NECK TEST

ROTATION ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: M105508

572N S10/H13 SN055 NECK CAL08

RUN NUMBER: 092903 1215.1



CHANNEL: MULTA

FILIER: CH CLASS 60

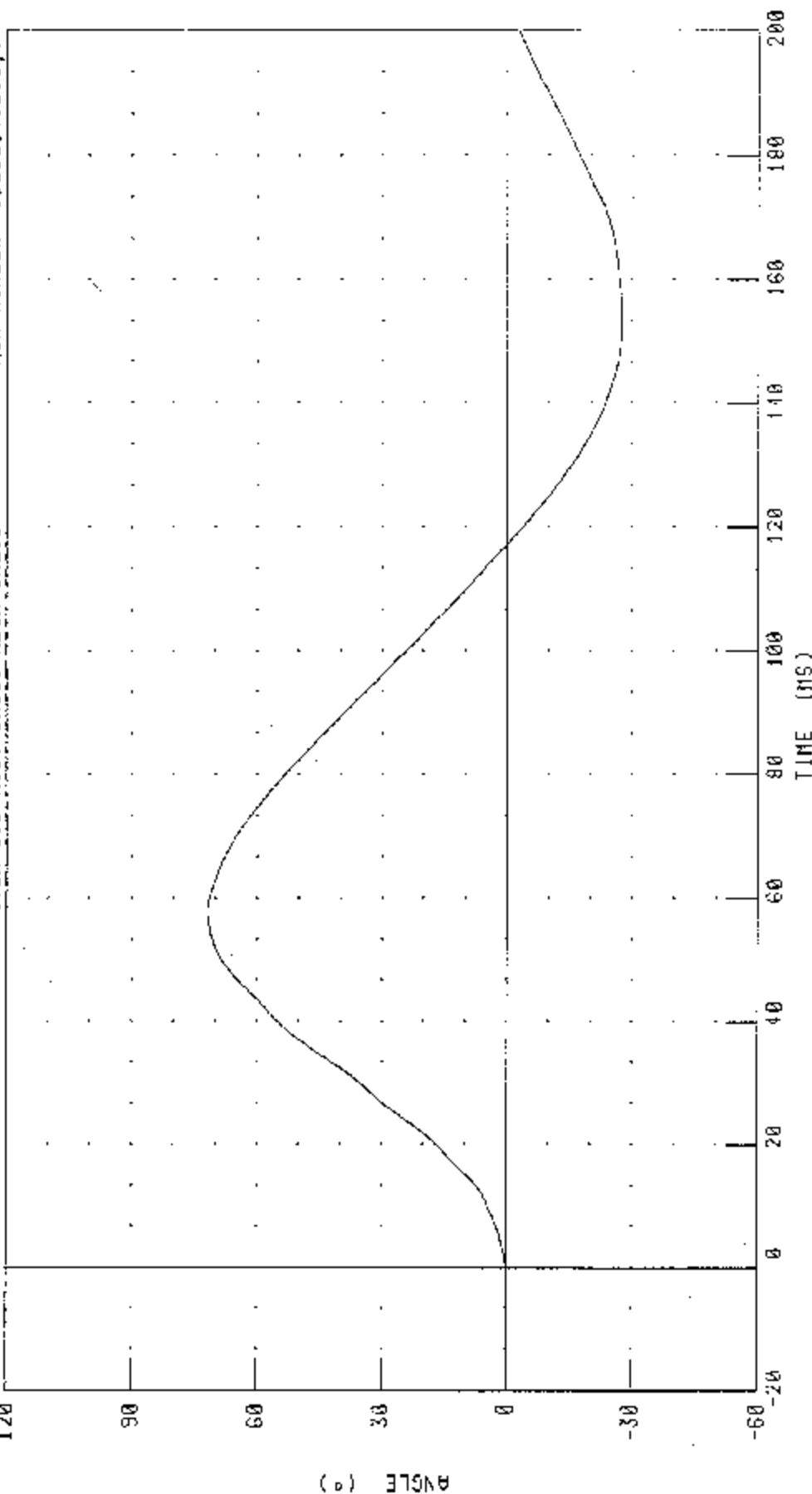
TIME (MS)

PEAK DATA: 45.78 ° @ 57.04 MS, -10.01 ° @ 158.06 MS

# 572M H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

TOTAL ROTATION

TRC TEST NUMBER: NL05508 572M SID/HILL SN055 NECK CAL08 RUN NUMBER 092903.1215.1



PEAK DATA: 71.71 ° @ 57.76 MS, 27.49 ° @ 153.20 MS

CHANNEL: TOTAL FILTER: CIL CLASS 60

ANGLE (°)

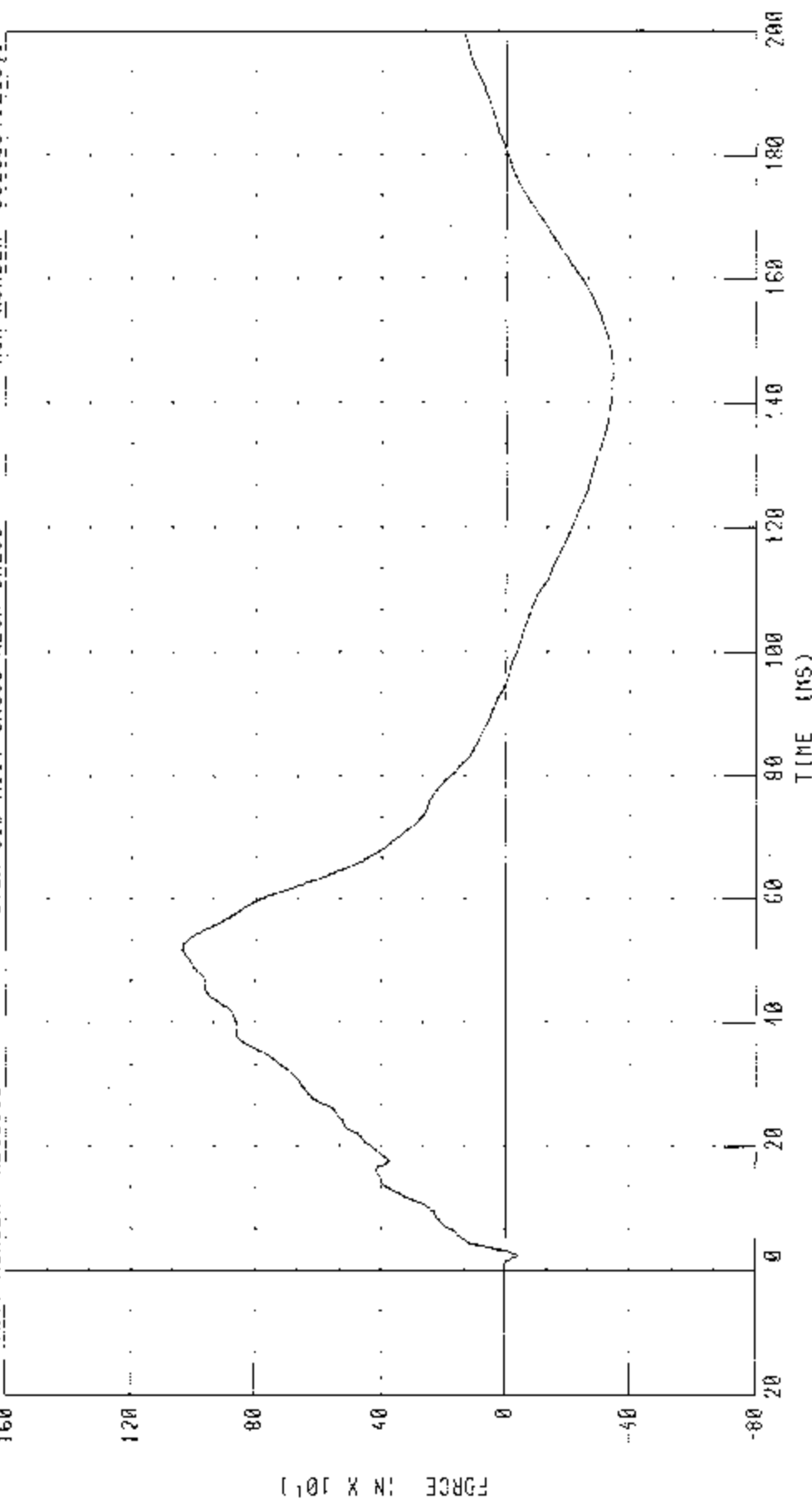
C-14

030924-1

572M H3/SID DUMMY CALIBRATION -- IFFI LATERAL NECK TEST

NECK FORCE V AXIS

TRC TEST NUMBER NL05508 572M SID/HIII SN055 NECK CAL08 RUN NUMBER 092903.121571



CHANNEL: MEKVF FILTER: CII. CLASS 1000

PEAK DATA: 1034 23 N @ 51.84 NS; -346.63 N @ 143.92 NS

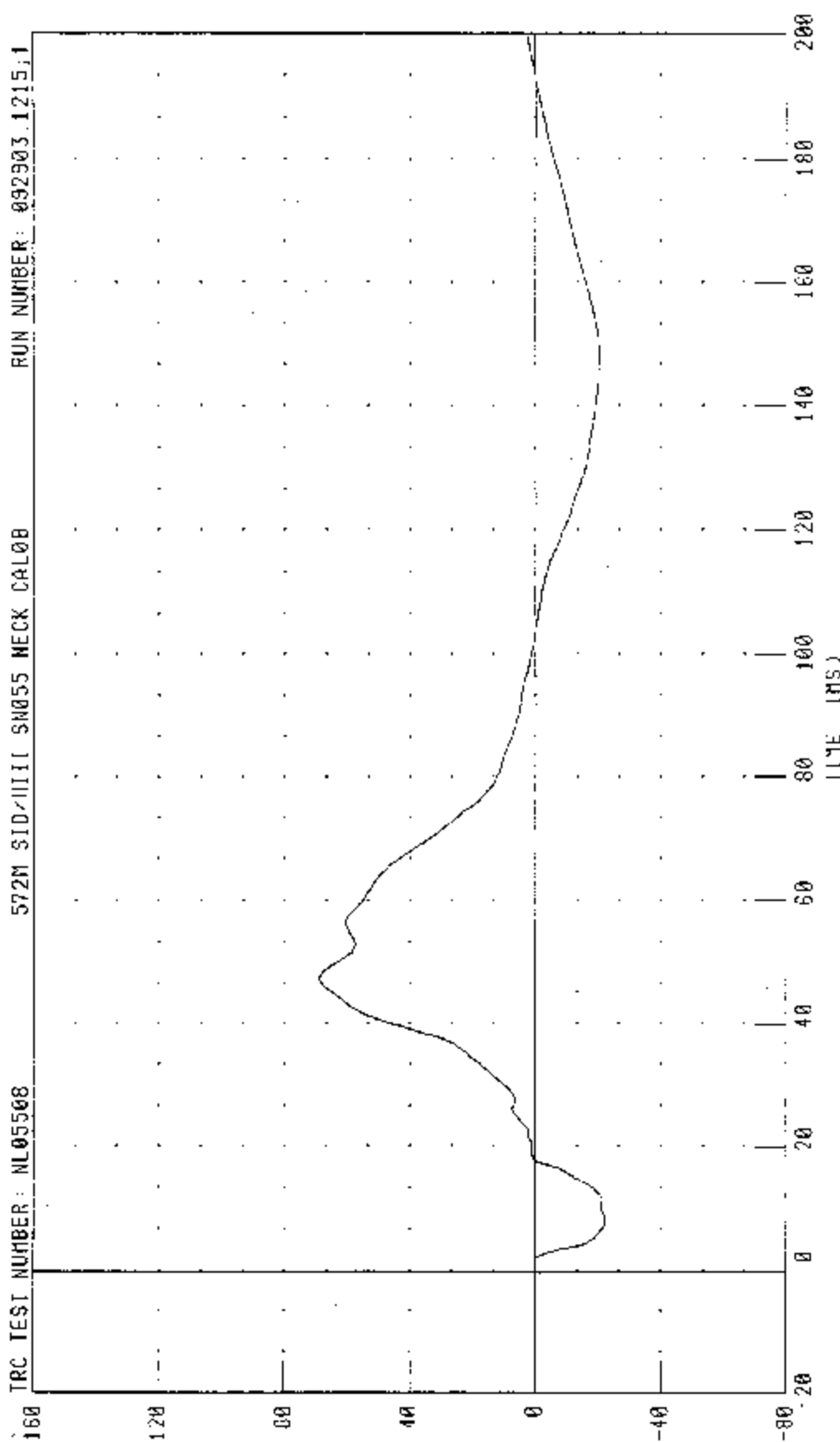
# 572M N3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

NECK MOMENT X AXIS

TRC TEST NUMBER: NL05508

572M SID/III11 SN055 NECK CAL08

RUN NUMBER: 092903.1215.1



CHANNEL: NEKXN FILTER: CH. CLASS 600

PEAK DATA: 69 MS N N 47 44 MS, 22 ST N N 0 64 MS

(N-M) TORQUE

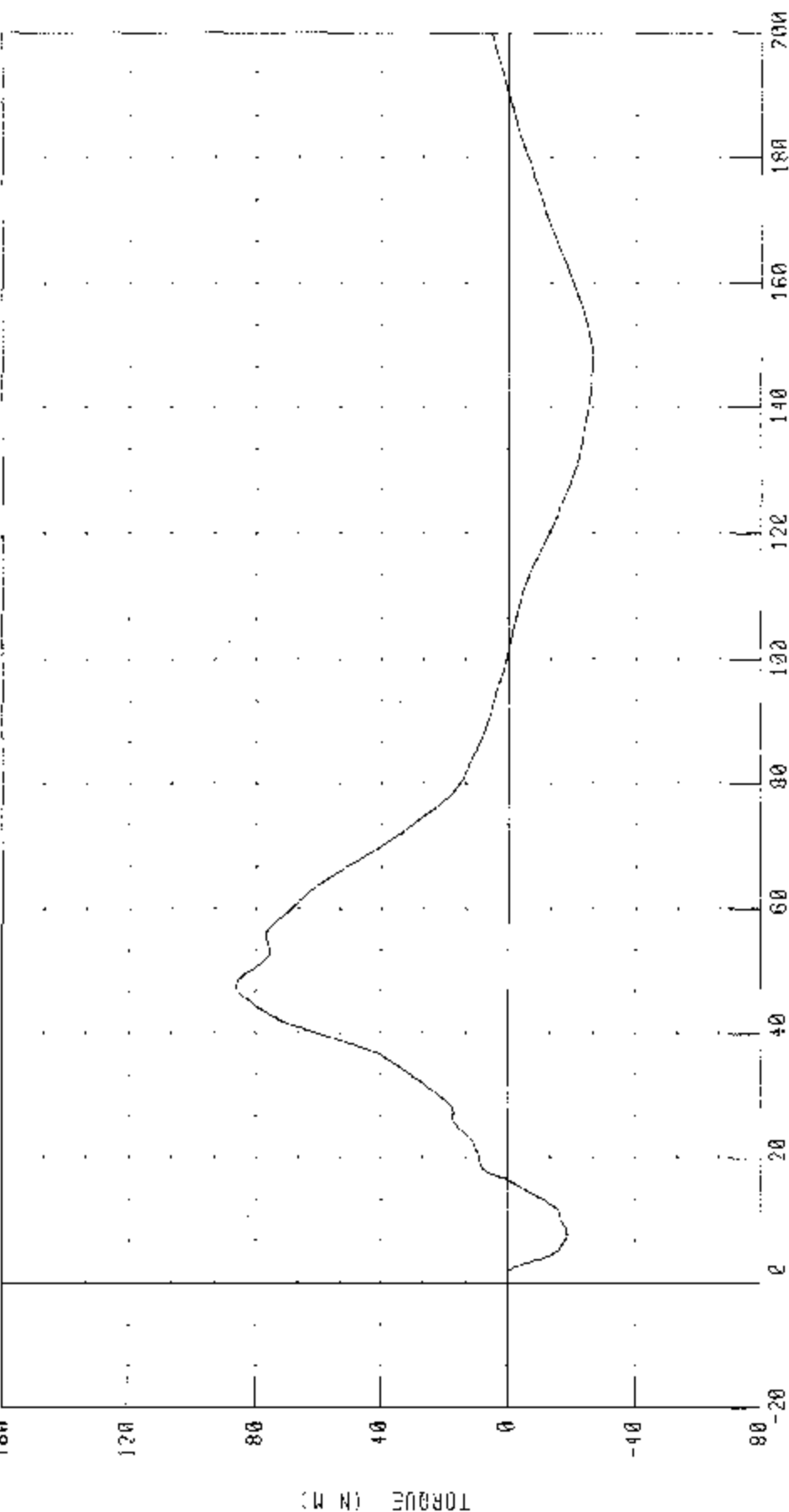
572M IIS/SID DUMMY CALIBRATION --- LEFT LATERAL NECK TEST

TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

1RC TEST NUMBER: HL05508

572M SID/EJ11 SN055 NECK CALIB

RUN NUMBER: 097903 1215.1



TIME (MS)

CHANNEL: NEKOM

FILTER: CH. CLASS 600

PEAK DATA: 86.27 N M @ 47.60 MS; -26.38 N M @ 147.20 MS



TRANSPORTATION RESEARCH CENTER INC.

PART 572B LUMBAR FLEXION TEST

SID HIII

CAL DATE: 23-Sep-03

TRC, INC. TEST NO: LF05508C SID/HIII SN 055 TORSO FLEX CAL 08

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6° C	21.2 °C
RELATIVE HUMIDITY	10 - 70 %	51 %
FORCE AT 0 DEG. FLEXION	-27 - 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 - 151 N	129.0 N
FORCE AT 30 DEG OF FLEXION	151 - 205 N	169.0 N
FORCE AT 40 DEG OF FLEXION	205 - 258 N	206.8 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 °	3 °

TEST MEETS SPECIFICATIONS

TECHNICIAN

*V. Z. Watten*

# Transportation Research Center Inc.

572B Abdomen Compression Test

STD HIII Serial No. 055 Calibration No. 08 - 4

Test Date 02/28/2003

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	6.8 - 7.9 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Comments:

Technician

  
\_\_\_\_\_

Approved

  
\_\_\_\_\_

09.23.2003 15:52:58 45

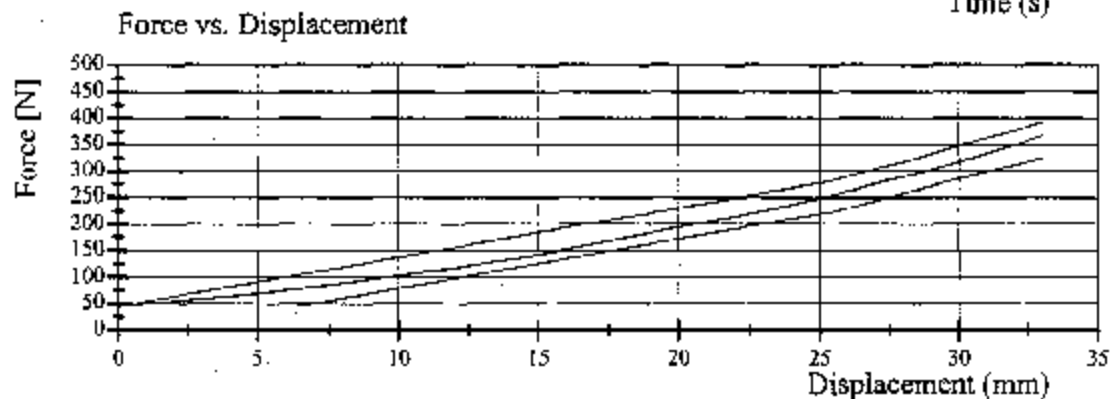
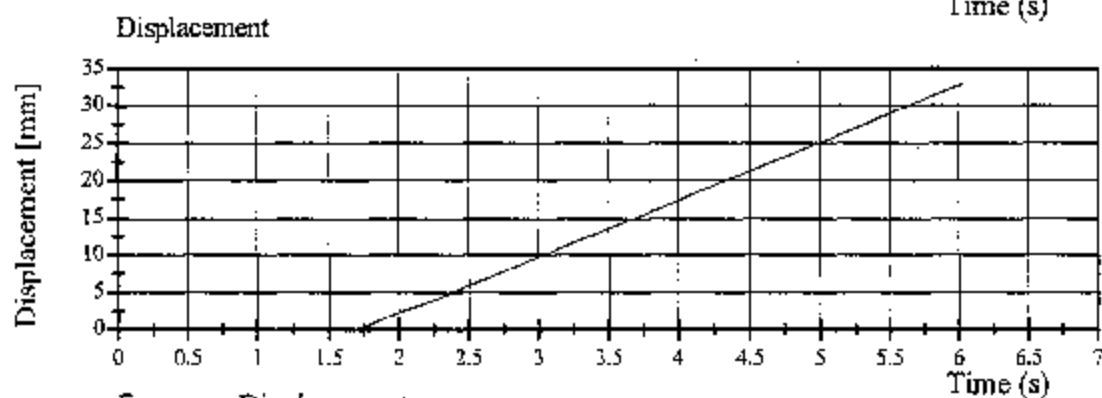
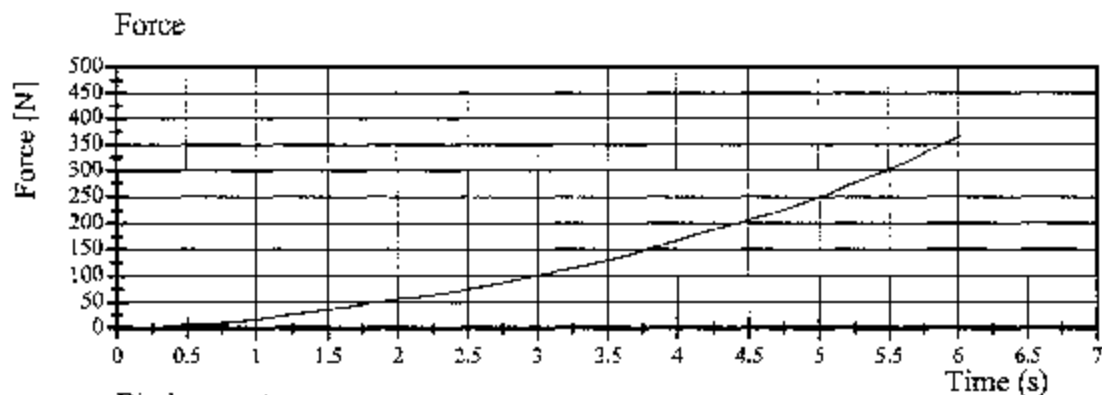


# Transportation Research Center Inc.

572B Abdomen Compression Test

SID HIII Serial No. 055 Calibration No. 08 - 4

Test Date 02/28/2003



09.23.2003 15:52:59 45

**TRE**

## TRANSPORTATION RESEARCH CENTER INC.

## THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

15-SEP-03

TRC INC.

572F SN055 DAMPER TEST CAL07

TEST NUMBERS: DP05507A, DP05507B, DP05507C

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	65.0 %
VELOCITY	FORCE	667 - 925 N	806 N
2.74 M/S	DISPLACEMENT	29.7 - 34.5 MM	29.8 MM
VELOCITY	FORCE	1706 - 2072 N	1858 N
4.24 M/S	DISPLACEMENT	31.6 - 37.2 MM	32.8 MM
VELOCITY	FORCE	4116 - 4880 N	4562 N
6.38 M/S	DISPLACEMENT	33.5 - 39.8 MM	36.0 MM

DAMPER SETTING = 6.5

TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 091503.1426;1

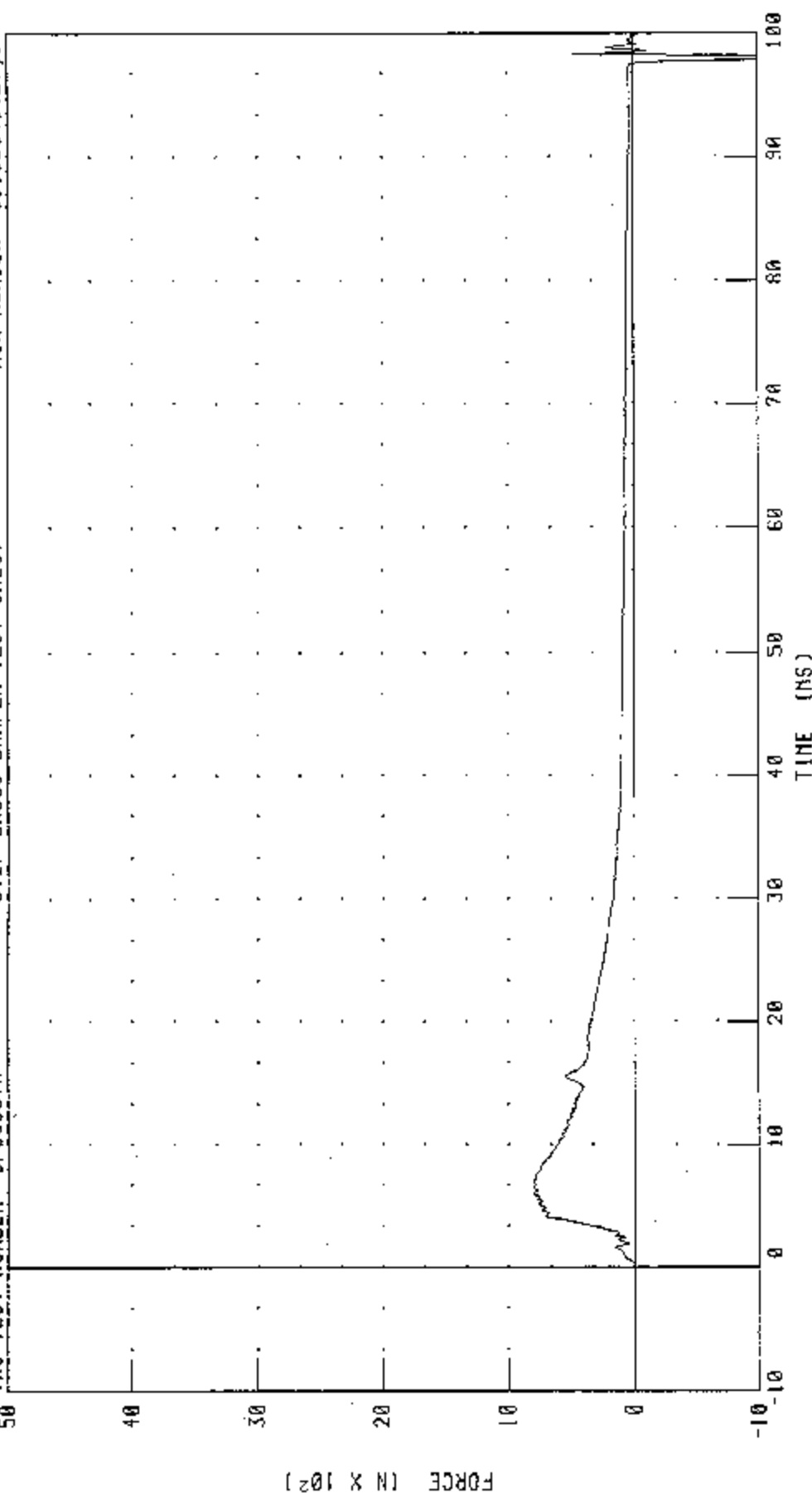
PART 572-F S.I.D THORACIC SHOCK ABSORBER CALIBRATION (3.0 N/SEC)

SHOCK ABSORBER RESISTIVE FORCE

IRC TEST NUMBER: DP05507A

572F SN055 DAMPER TEST CAL07

RUN NUMBER: 091503.1427.1



CHANNEL: DAMPF FILTER: CH. CLASS 1000

PEAK DATA: 805.97 N @ 6.48 MS; -2638.27 N @ 97.92 MS

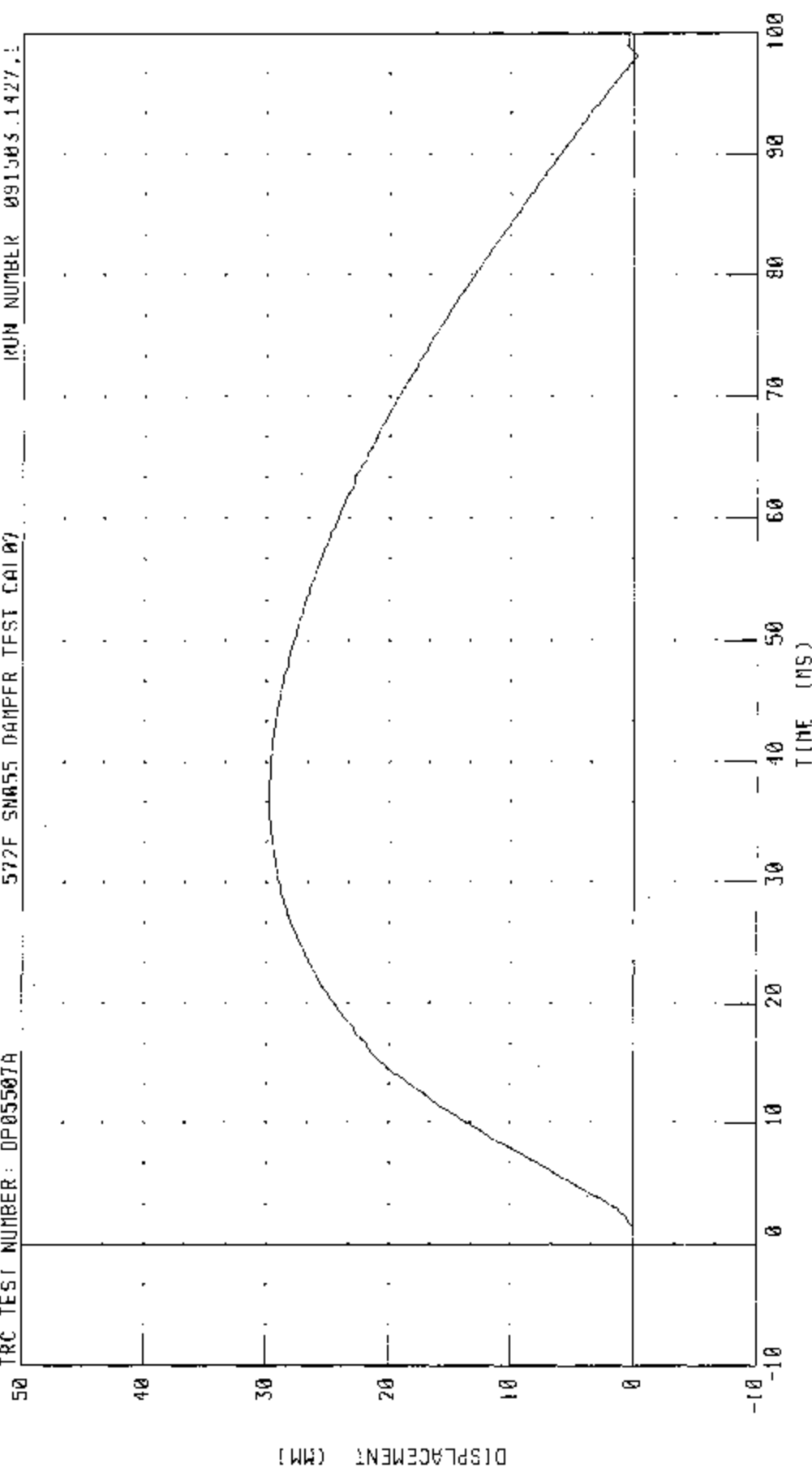
PART 572-4 S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP05507A

572F SNA55 DAMPER TEST CAL 02

RUN NUMBER 091503.1427.1



CHANNEL: CSTY0 FILTER CH. CLASS 1000

PEAK DATA: 29 76 MM @ 35 92 MS; -0.24 MM @ 98 10 MS

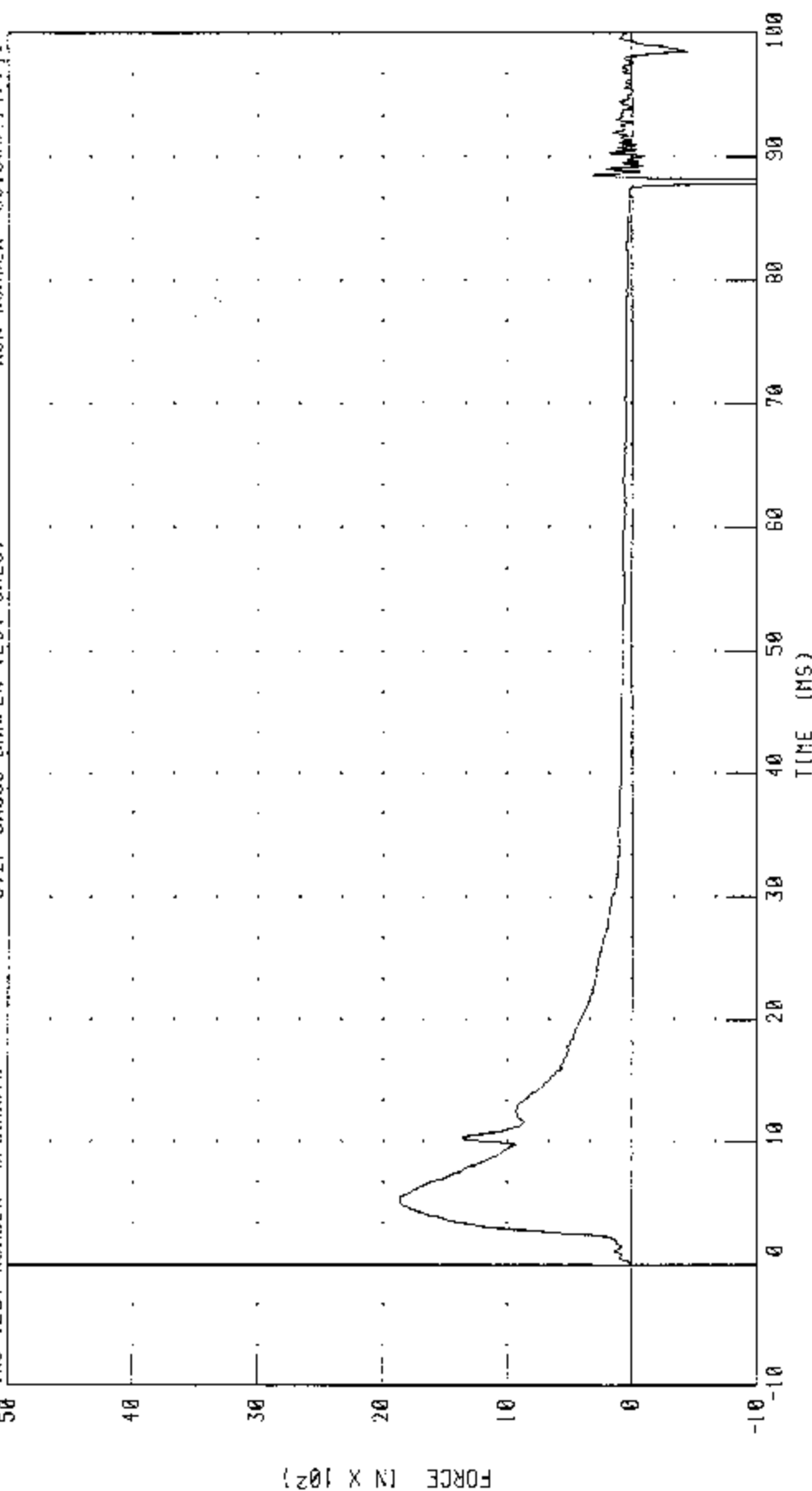
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: 0P05507B

572F SN055 DAMPER TEST CAL07

RUN NUMBER: 091503.1427.1



CHANNEL: D0MPF FILTER: CII CLASS 1000

PEAK DATA: 1857.92 N @ 5.36 MS, 2550.33 N @ 88.00 MS

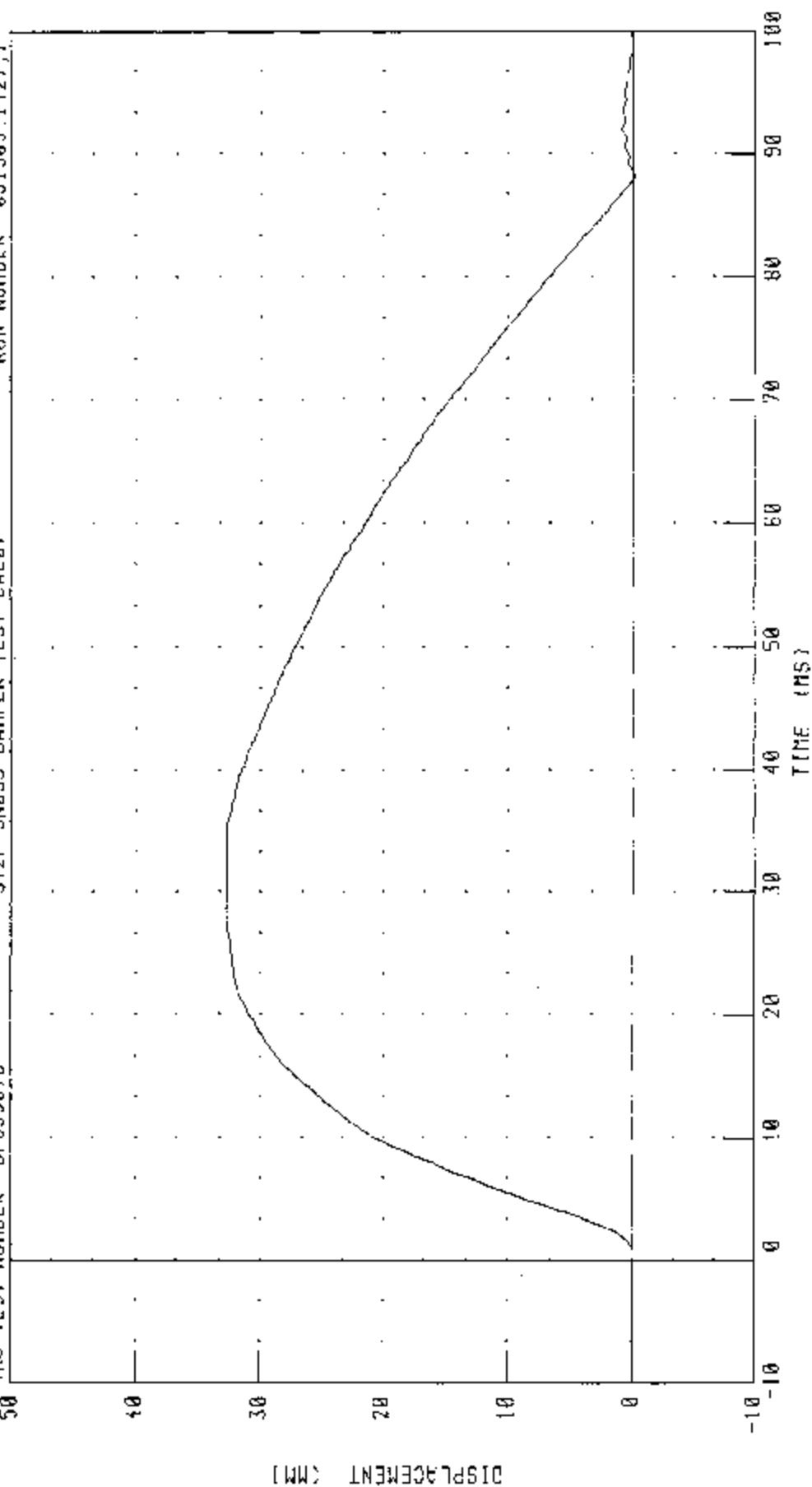
PART 572-F 5.1.0 THORACIC SHOCK ABSORBER CALIBRATION (4.3 N/SEC)

SHOCK ABSORBER DISPLACEMENT

IRC TEST NUMBER: DP05507B

572F SN055 DAMPER TEST CAL07

RUN NUMBER: 091503.1427.1



CHANNEL: CSTYD FILTER: CH. CLASS 1000

PEAK DATA 32.77 MM @ 31.20 MS, --0.25 MM @ 98.24 MS



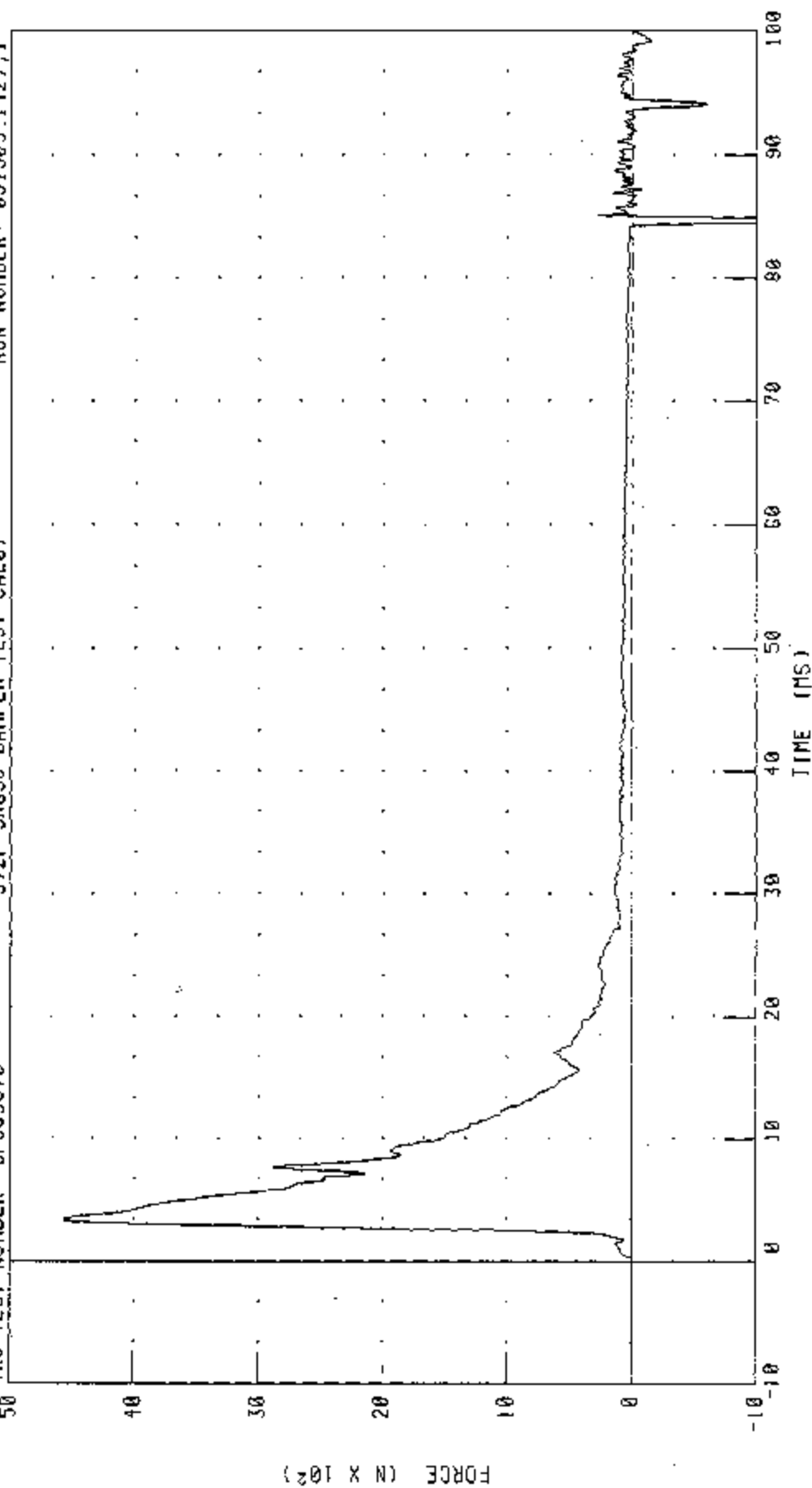
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP05507C

572F SN055 DAMPER TEST CAL07

RUN NUMBER: 091503.1427.1



PEAK DATA: 4562.46 N @ 3.28 MS; -2683.85 N @ 84.72 MS

CHANNEL: DAMPF FILTER CH CLASS 1000

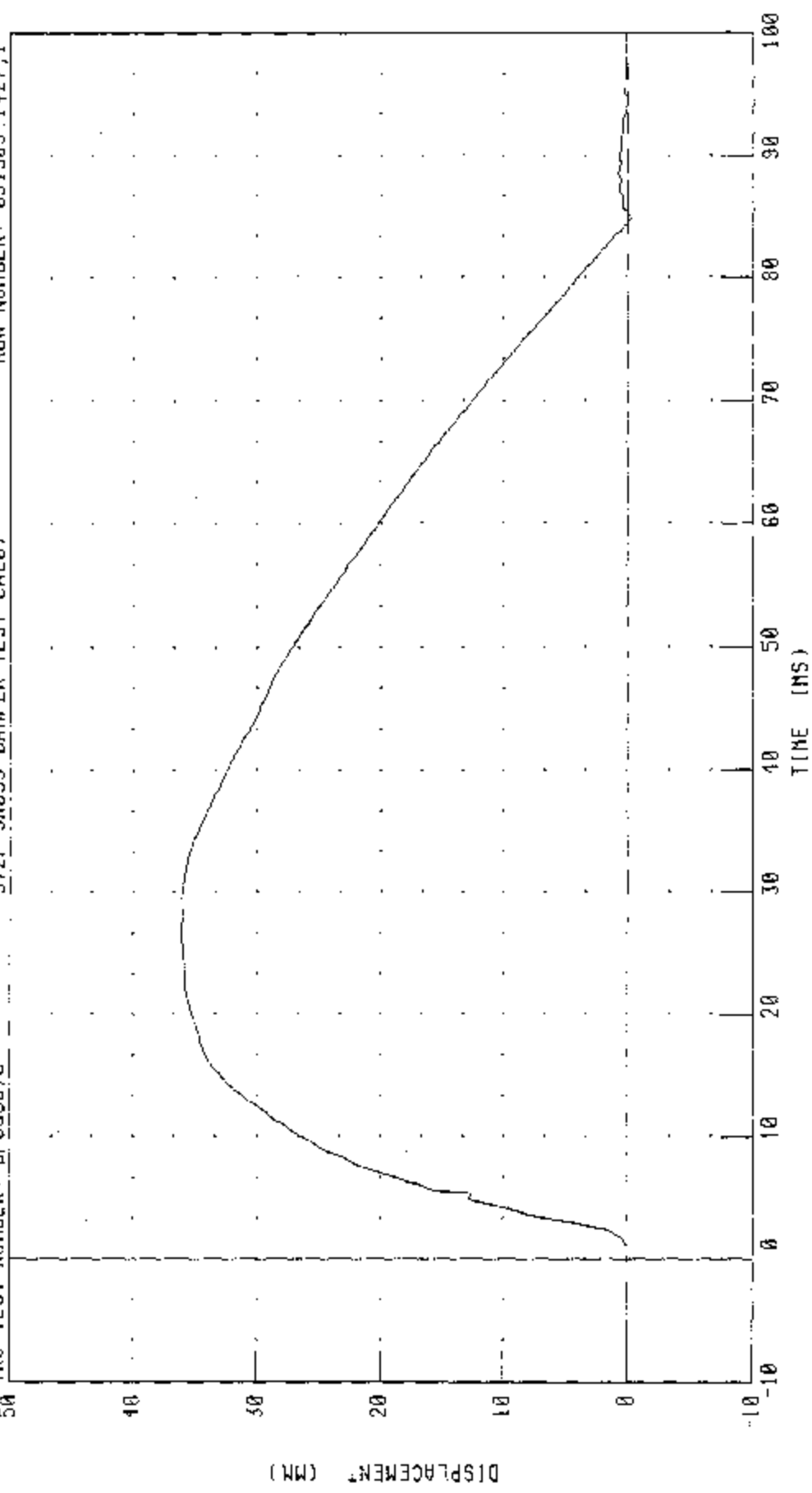
PART 572 F S I D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP05507C

572F SN055 DAMPER TEST CAL07

RUN NUMBER: 091503.1427,1



TIME (MS)

PEAK DATA: 35.97 MS @ 27.76 MS; -0.28 MM @ 84.88 MS

CHANNEL: CSTY0 FILTER CH. CLASS 1000

## TRANSPORTATION RESEARCH CENTER INC.

## LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

23-SEP-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL05508

SID/H3 SN055 L.THORAX CAL08

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	41.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.29 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	40.9 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	39.8 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	19.3 G

TEST MEETS SPECIFICATIONS

TECHNICIAN

*V.F. Wether*

RUN NUMBER: 092703.1924;1

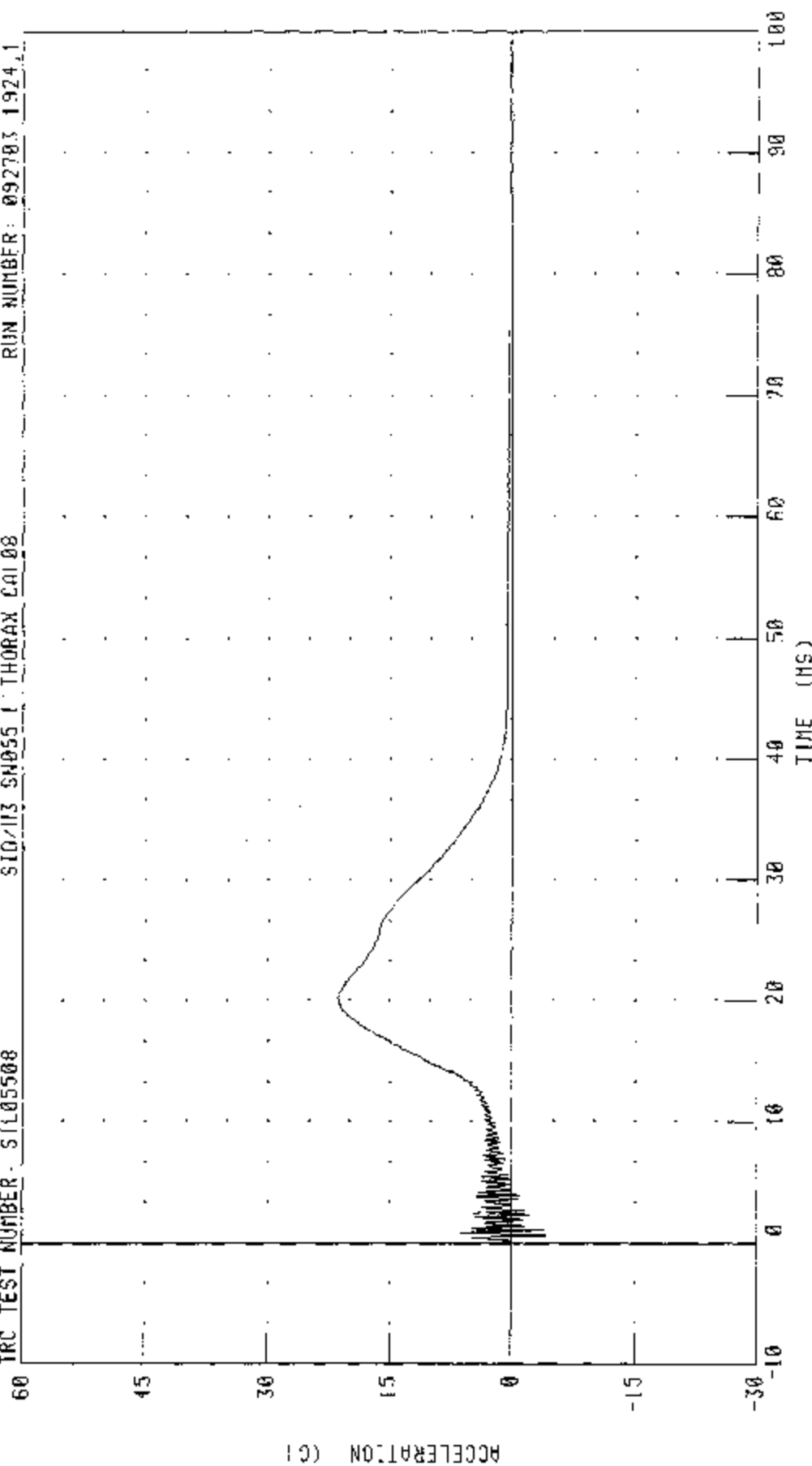
PART 572-F S.I.D. THORAX CALIBRATION (LEFT SIDE IMPACT)

PENDULUM DECELERATION

TRC TEST NUMBER: S1105508

SID/HS S0055 THORAX CAL08

RUN NUMBER: 092703 1924.1



CHANNEL: PENXC FILTER: CH. CLASS 1000

PEAK DATA: 21.40 G @ 20.24 MS; 4.13 G @ 0.64 MS

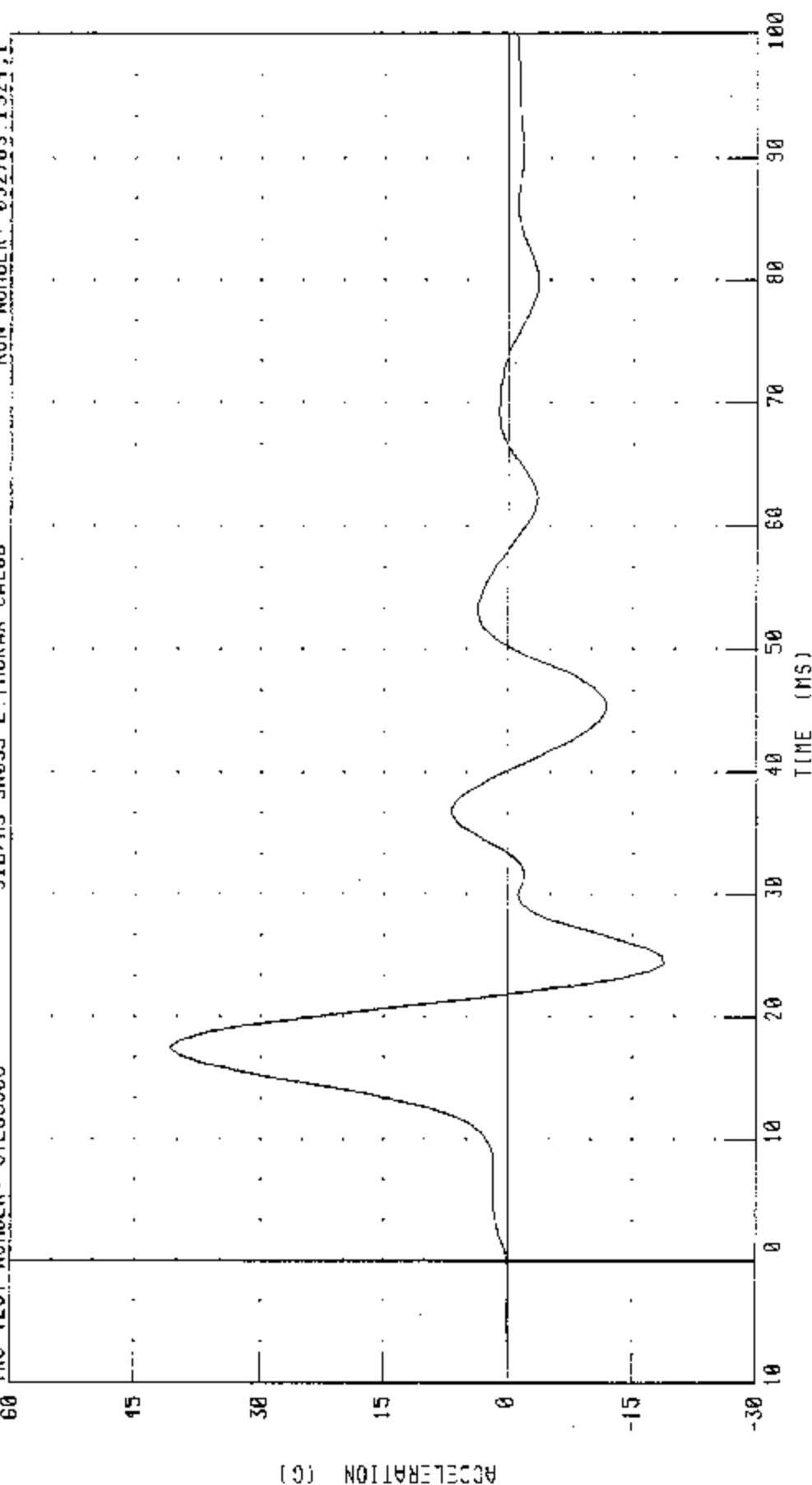
PART 572-F S I D THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT UPPER RIB ACCELERATION Y AXIS

IRC TEST NUMBER: STL05508

SIO/H3 SN055 L THORAX CAL08

RUN NUMBER: 092703.1924.1



CHANNEL: LURYG FILTER: FIR 100

PEAK DATA: 40.85 G @ 17.50 MS; -18.76 G @ 24.30 MS

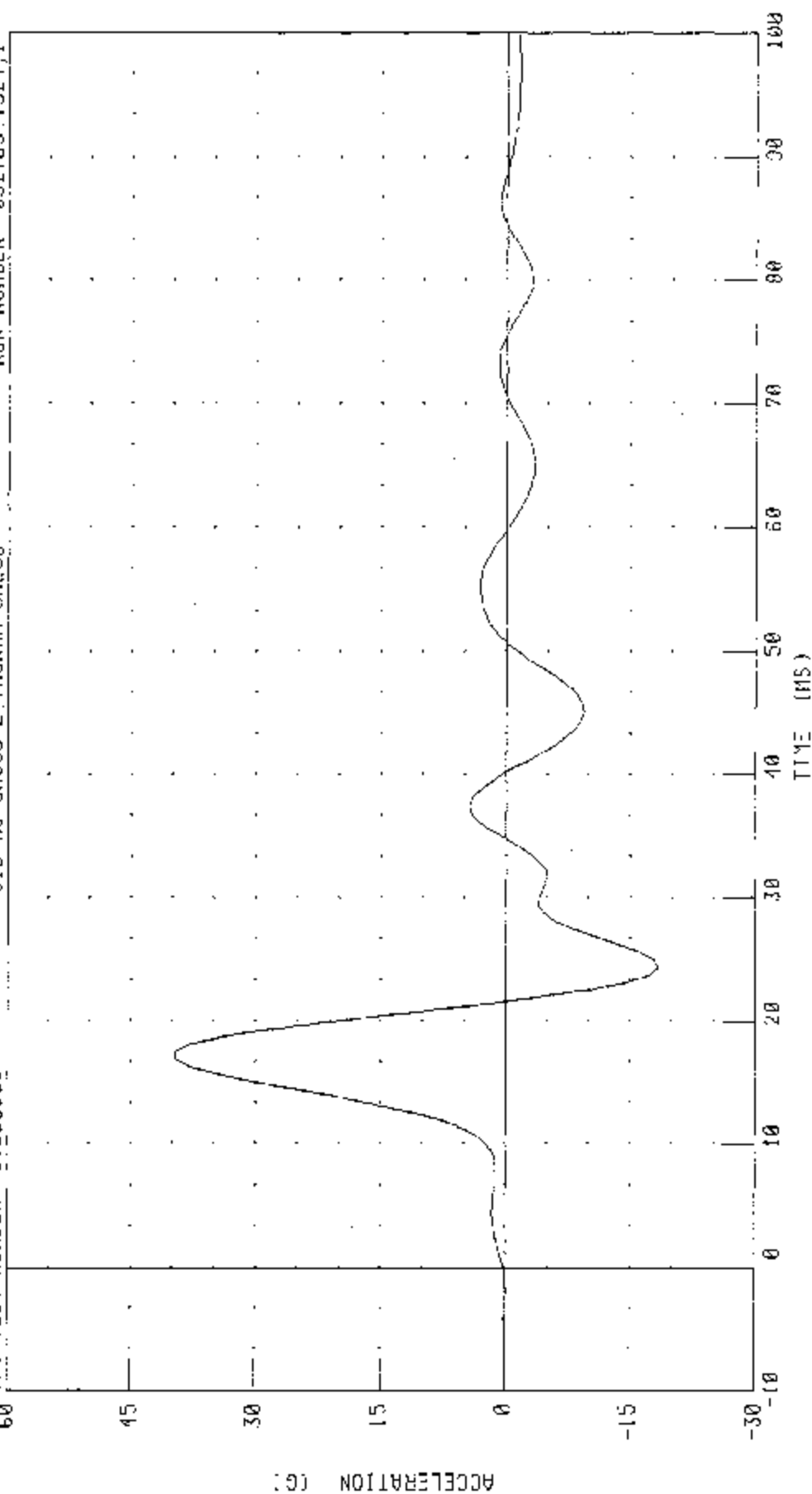
PART 572-F S.E.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT LOWER RIB ACCELERATION Y AXIS

IRC TEST NUMBER STL05508

SID/113 SN055 L THORAX CAL08

RUN NUMBER: 092703.1924.1



CHANNEL: LLRYG JULIER: FIR 180

PEAK DATA: 39.75 G @ 17.50 MS. -10.52 G @ 24.38 MS

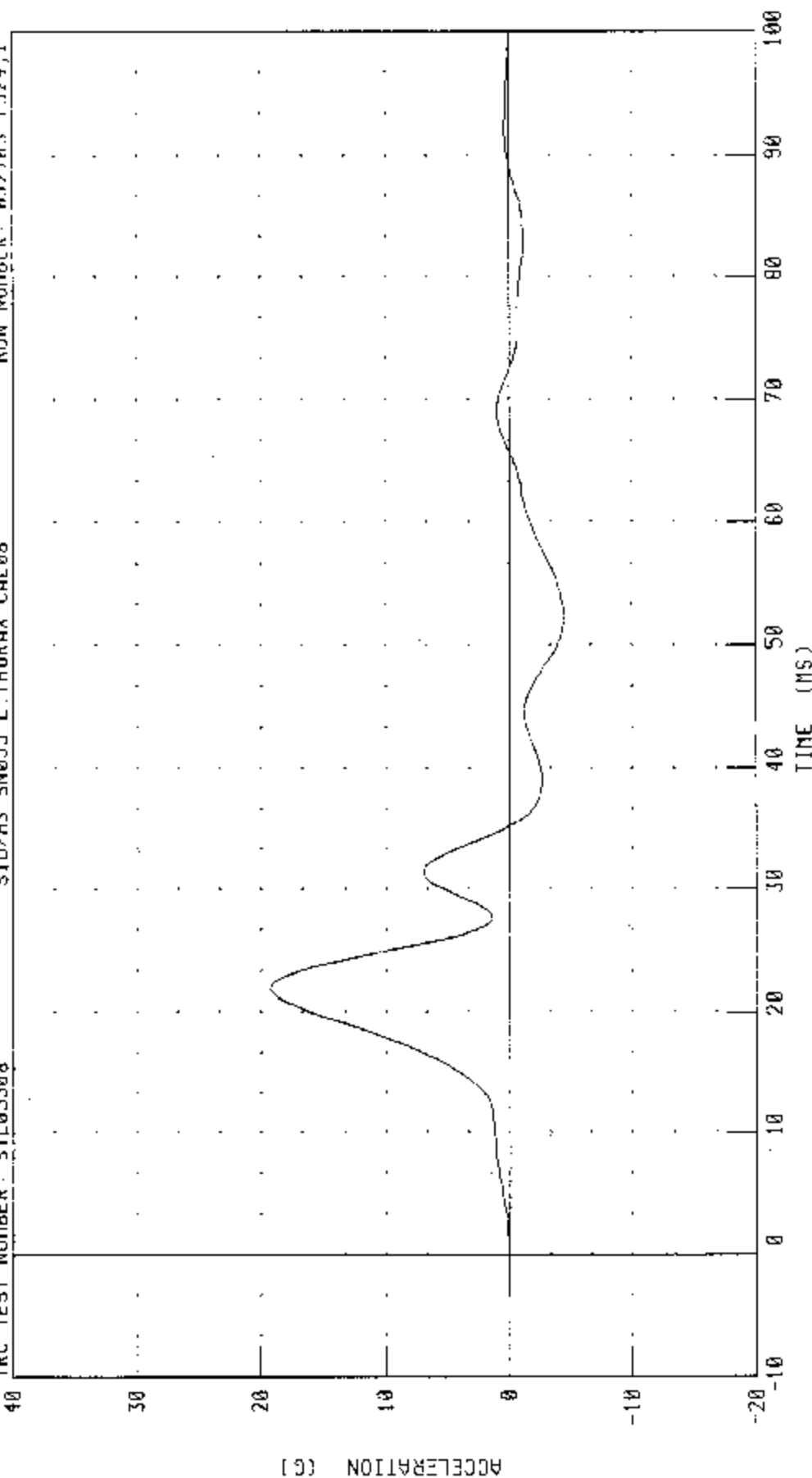
# PART 572-F S I O THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

IRC TEST NUMBER: ST105508

SID/HIS SN055 L THORAX CAL08

RUN NUMBER: 092703 1924,1



CHANNEL: 112Y6 FILTER: FIR 100

PEAK DATA 19 25 G @ 21.88 MS; -1 15 G @ 52.50 MS

## TRANSPORTATION RESEARCH CENTER INC.

## LATERAL PELVIS IMPACT TEST

## SIDE IMPACT DUMMY

23-SEP-03

## LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL05508

SID/H3 SM055 LEFT PELVIS CAL08

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	40.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.27 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	44.2 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	6.0 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

V. J. Walter

RUN NUMBER: 092703.1916;1



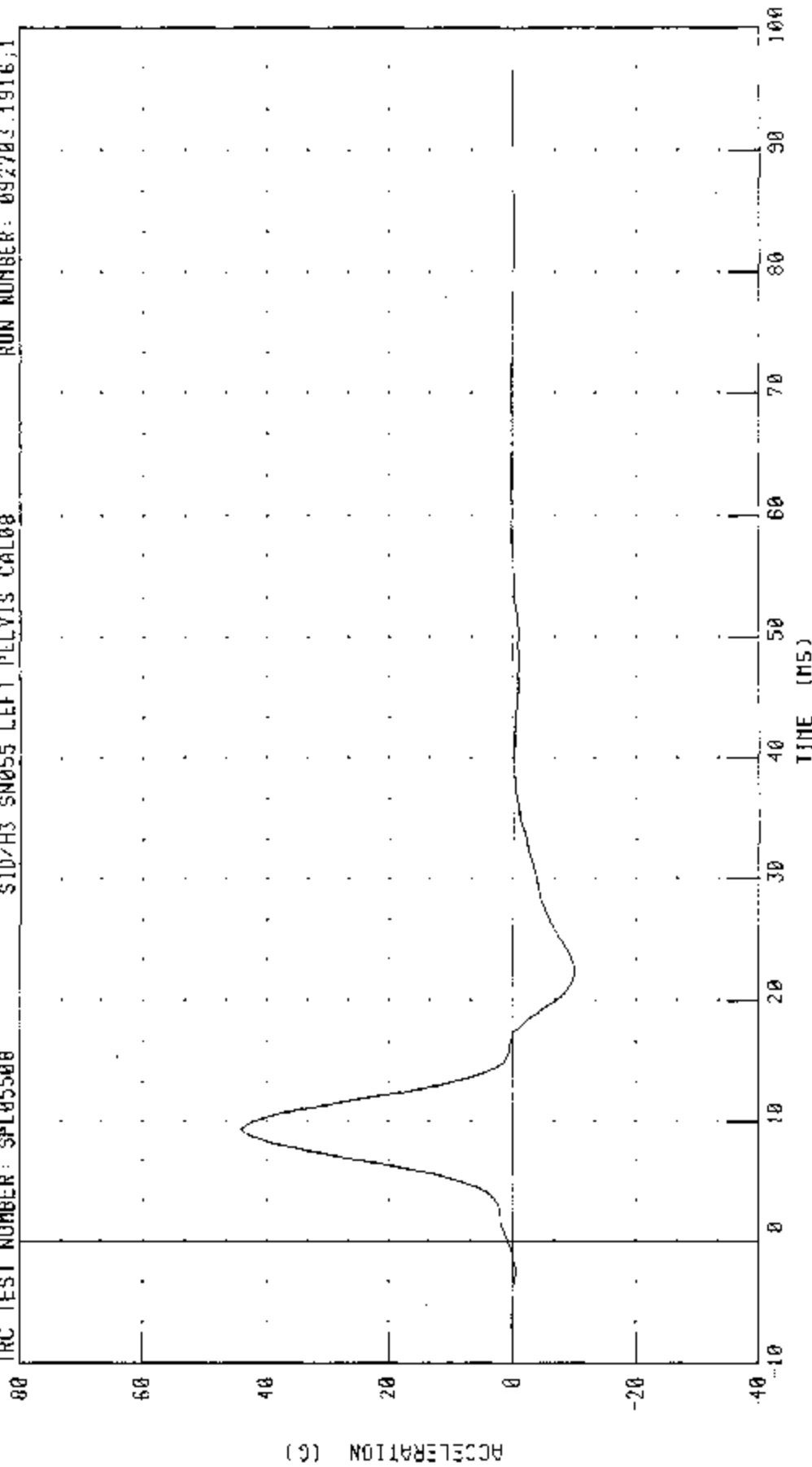
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

TRC TEST NUMBER: SPL05500

SID/H3 SN055 LEFT PELVIS CAL00

RUN NUMBER: 092703.1916.1



TIME (MS)

CHANNEL: PEVYG FILTER: FIR 100

PEAK DATA: 44 17 6 0 9 37 MS, -9 98 0 0 22 50 MS

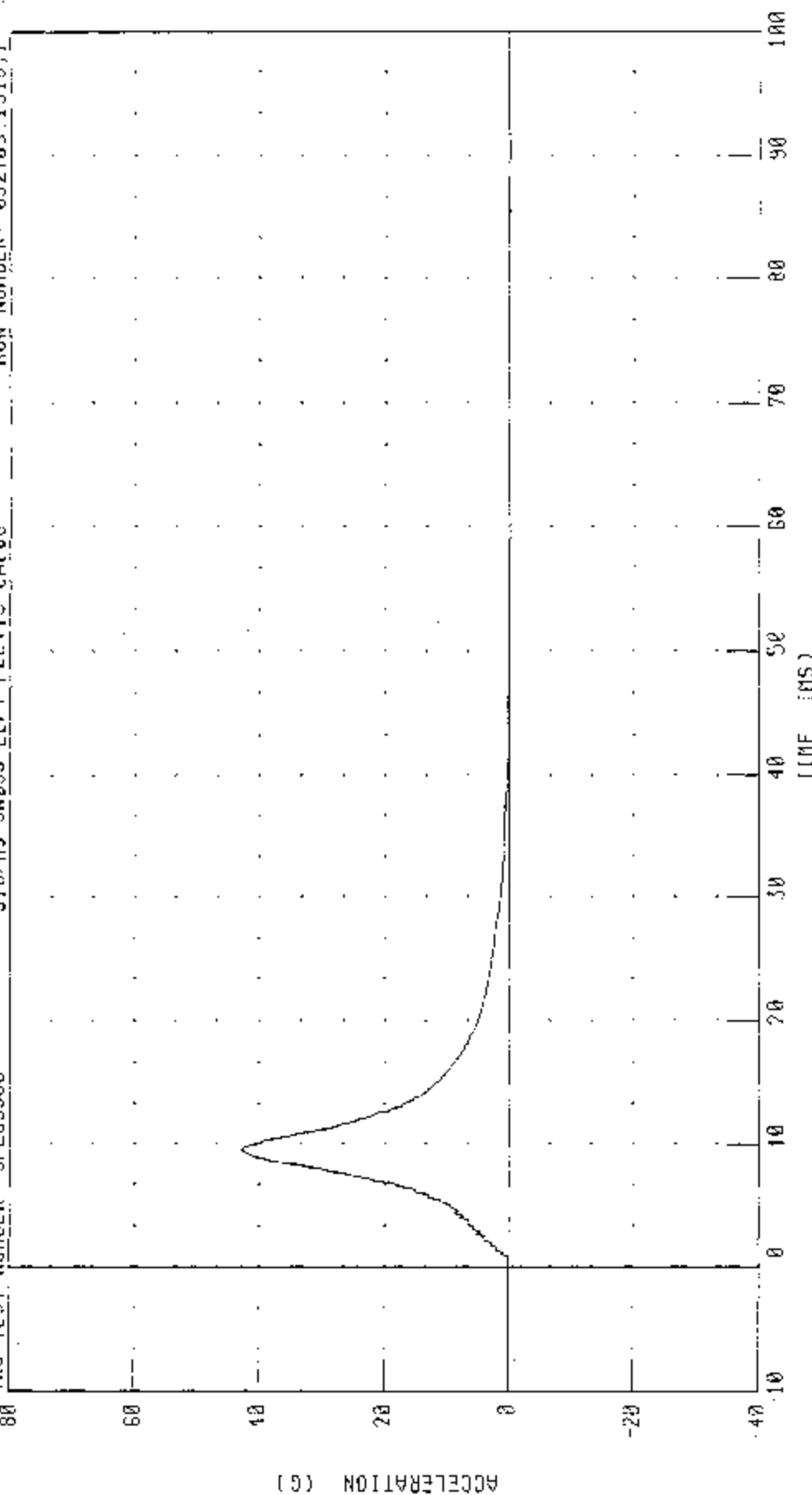
# PART 572-F S.I.U. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION

TRC TEST NUMBER: SPL05508

SID/H3 SW055 LEFT PELVIS CAL08

RUN NUMBER: 092703.1916.1



CHANNEL PENXC FILTER CH CLASS 1000

PEAK DATA: 42.76 G @ 9.52 MS, -0.10 G @ 51.12 MS

## Calibration Test Results

### Pre-Test

SID III: 906

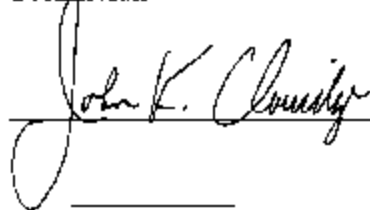
Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Head Drop Test:	The head passed all lateral drop test requirements.
Lateral Neck Test:	The neck passed all impact test requirements.
Lateral Thorax Impact Test:	The thorax passed all impact test requirements.
Lumbar Flexion Test:	The dummy met the lumbar flexion test requirements.
Abdominal Compression Test:	The abdomen met the compression test requirements.
Pelvis Impact Test:	The lateral pelvis passed all impact test requirements.
Thoracic Shock Absorber Test:	The thoracic shock absorber passed all test requirements.

**Transportation Research Center Inc.**  
**SID/HIII Dummy**  
**External Dimensions**  
**Serial No. 906 Calibration No. 02**

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	901 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	511 mm	Yes
Hip Pivot Height	HP	99.1 REF mm	99.1 mm	
Rib From Backline	RD	228.6 - 241.3 mm	229 mm	Yes
Knee Pivot From Backline	KH	510.5 - 525.8 mm	513 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	496 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	370 mm	Yes
Top Rib Width From CVL	RW-1	165.1 - 180.3 mm	172 mm	Yes
Bottom Rib Width From CVL	RW-2	165.1 - 180.3 mm	173 mm	Yes
Difference Between Top & Bottom Rib Width from CVL		<= 2.5 mm	1.0 mm	Yes

Technician

  
 \_\_\_\_\_

Approved

  
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## TRANSPORTATION RESEARCH CENTER INC.

## LATERAL HEAD DROP TEST

HYBRIDIII SID DUMMY

12-SEP-03

## LEFT SIDE CONFIGURATION

TRC INC.

TEST NO. HDL90602

572M SID/IIII SN906 HEAD CAL02

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6 deg. C	21.11 deg. C
RELATIVE HUMIDITY	10 - 70 %	62.00 %
PEAK RESULTANT ACCELERATION	120 - 150 G	131.10 G
PEAK LONGITUDINAL ACCELERATION	15 G MAX	8.74 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 100203.0721;1

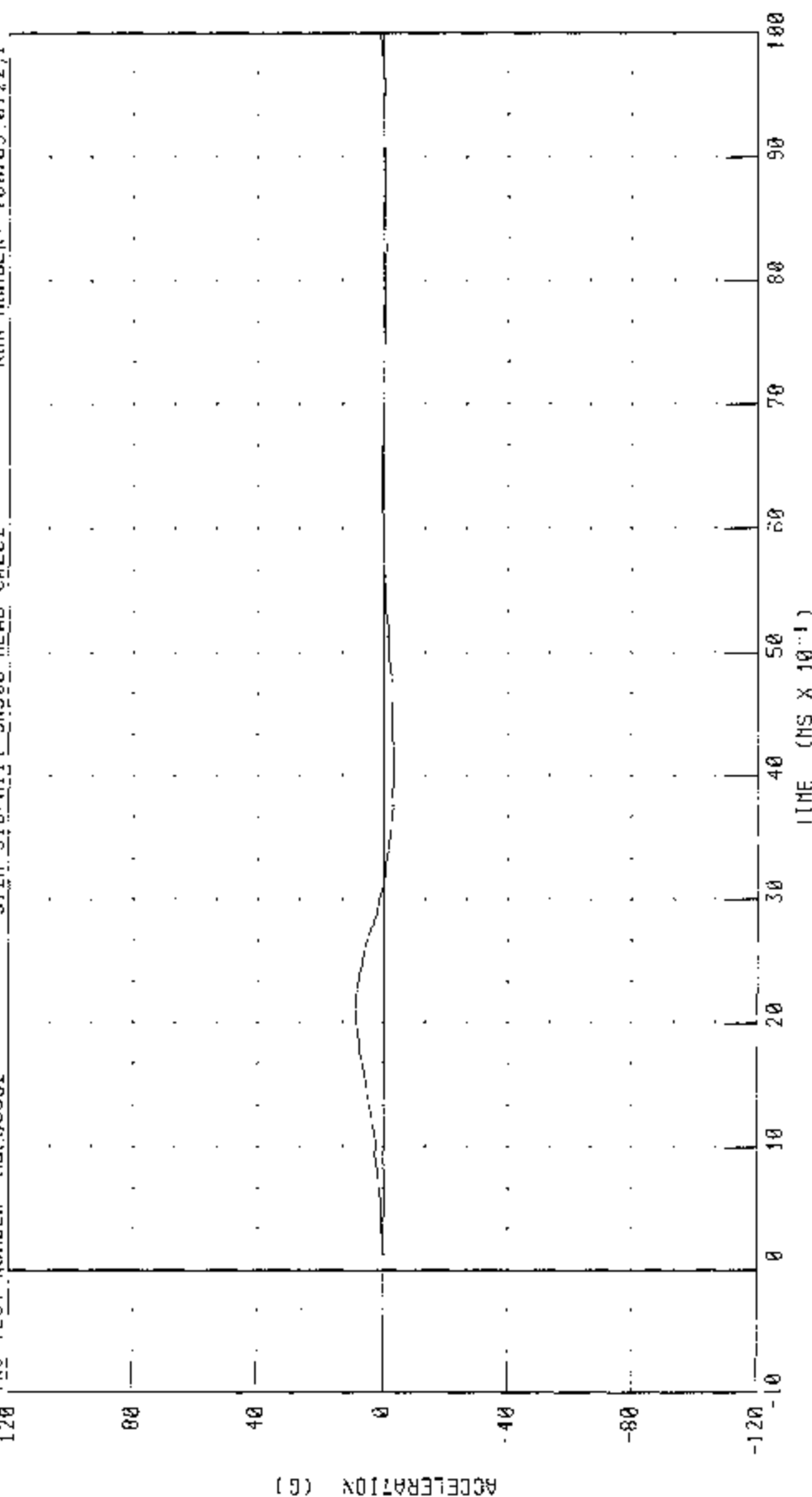
# 572M SID/HILL DUMMY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEAD ACCELERATION X AXIS

TRC TEST NUMBER: HDL90602

572M SID/HILL SN906 HEAD CAL02

RUN NUMBER: 100203.0722;1



CHANNEL: HEDXC FILTER: CH. CLOSS 1000

PEAK DATA: 8.74 S @ 2.16 MS, -3.23 G @ 4.08 MS

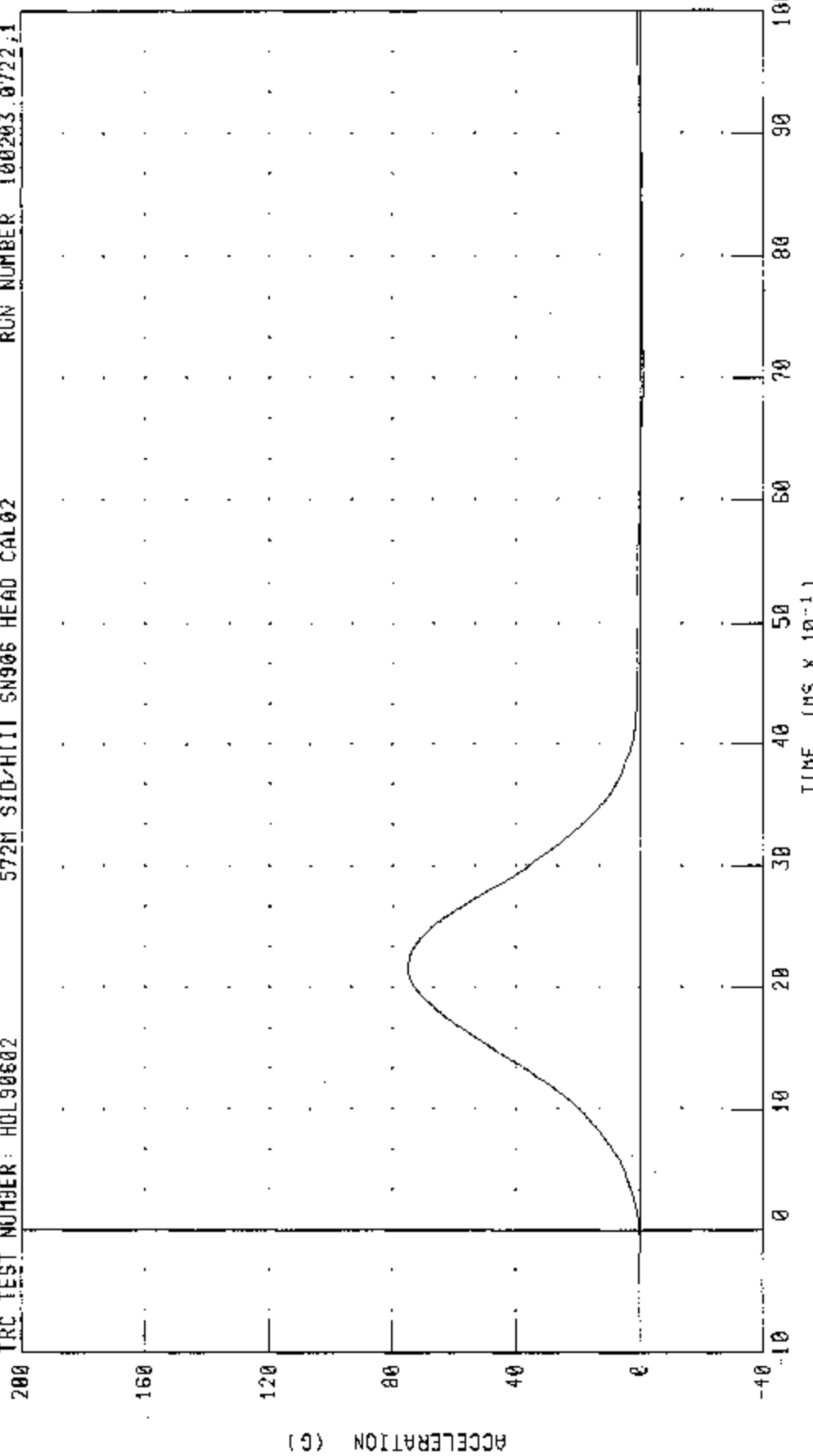
572M SID/HIII DUMMY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEAD ACCELERATION Y AXIS

TRC TEST NUMBER: HDL90602

572M SID/HIII SN906 HEAD CAL02

RUN NUMBER 100203 0722.1



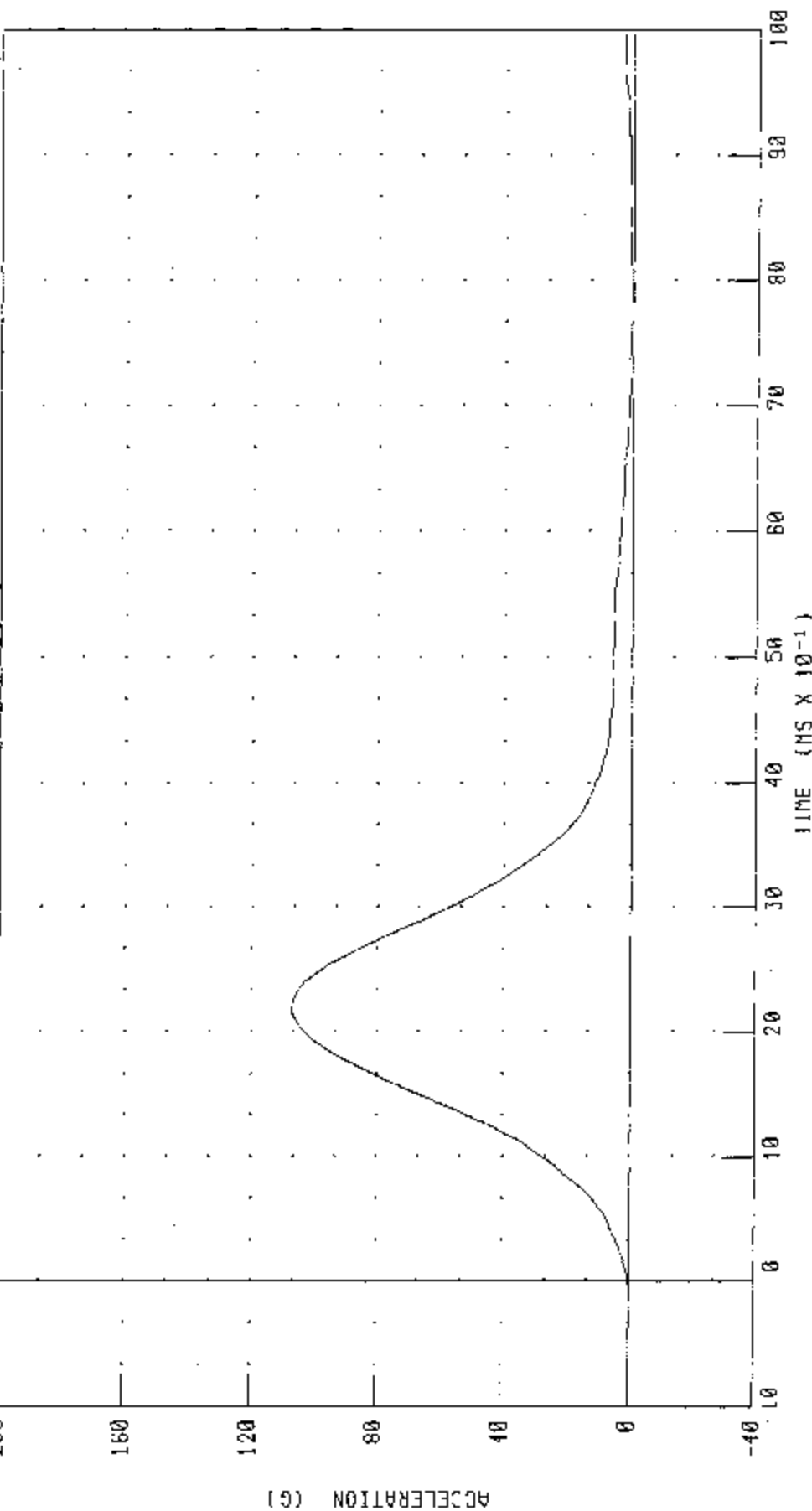
CHANNEL: HEDYC FILTER: CH. CLASS 1000

PEAK DATA: 74.94 G @ 2.16 MS; -0.73 G @ 7.04 MS

572N SID/HIII DUMMY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DRCP

HEAD ACCELERATION Z AXIS

TRC TEST NUMBER: N0190602 572N SID/HIII SN906 HEAD CAL02 RUN NUMBER: 100203.0722.1



CHANNEL: HEDZG FILTER: CH CLASS 1000

PEAK DATA: 107 22 0 2.16 MS, -0 00 0 0 0 96 MS



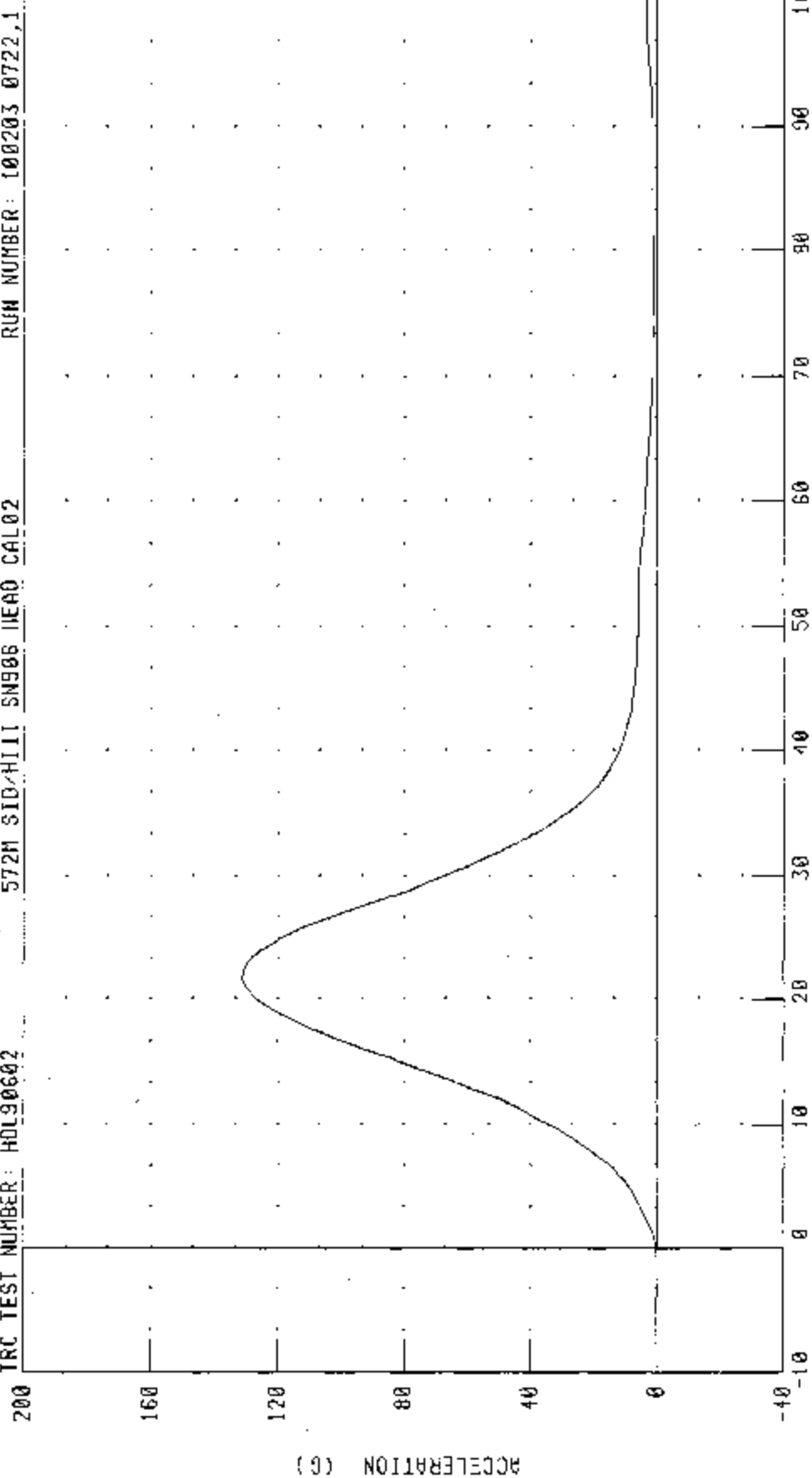
# 572M SID/HIII DUNNY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEAD RESULTANT ACCELERATION

RUN NUMBER: 100203 0722,1

572M SID/HIII SN906 HEAD CAL02

TRC TEST NUMBER: HDL90602



TIME (MS X 10<sup>-1</sup>)

CHANNEL: HEDRC FILTER: CH CLASS 1000

PEAK DATA: 131.10 G @ 2.16 MS, 0.03 G @ -0.72 MS

## TRANSPORTATION RESEARCH CENTER INC.

## LATERAL NECK TEST

HYBRIDIII SID DUMMY

11-SEP-03

## LEFT SIDE CONFIGURATION

TRC INC.

TEST NO. NFL90602

572M SID/H3 SN906 NECK CAL02

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 deg. C	21.11 deg. C
RELATIVE HUMIDITY		10 - 70 %	62.00 %
IMPACT VELOCITY		6.89 - 7.13 M/S	6.99 M/S
INTEGRATED VELOCITY	10 MS	1.96 - 2.55 M/S	2.46 M/S
	20 MS	4.12 - 5.10 M/S	4.84 M/S
	30 MS	5.73 - 7.01 M/S	6.70 M/S
	40 - 70 MS	6.27 - 7.64 M/S	7.12- 7.23 M/S
MAXIMUM MIDSAGGITAL PLANE ROTATION		66 - 82 deg.	68.66 deg.
ROTATION ANGLE DECAY TIME FROM PEAK TO ZERO		58 - 67 MS	61.12 MS
MAXIMUM MOMENT ABOUT OCCIPITAL CONDYLE		73 - 88 NM	78.20 NM
POSITIVE MOMENT DECAY TIME FROM PEAK TO ZERO		49 - 64 MS	54.56 MS
TIME OF MAXIMUM ROTATION AFTER MAXIMUM MOMENT		2 - 16 MS	8.80 MS

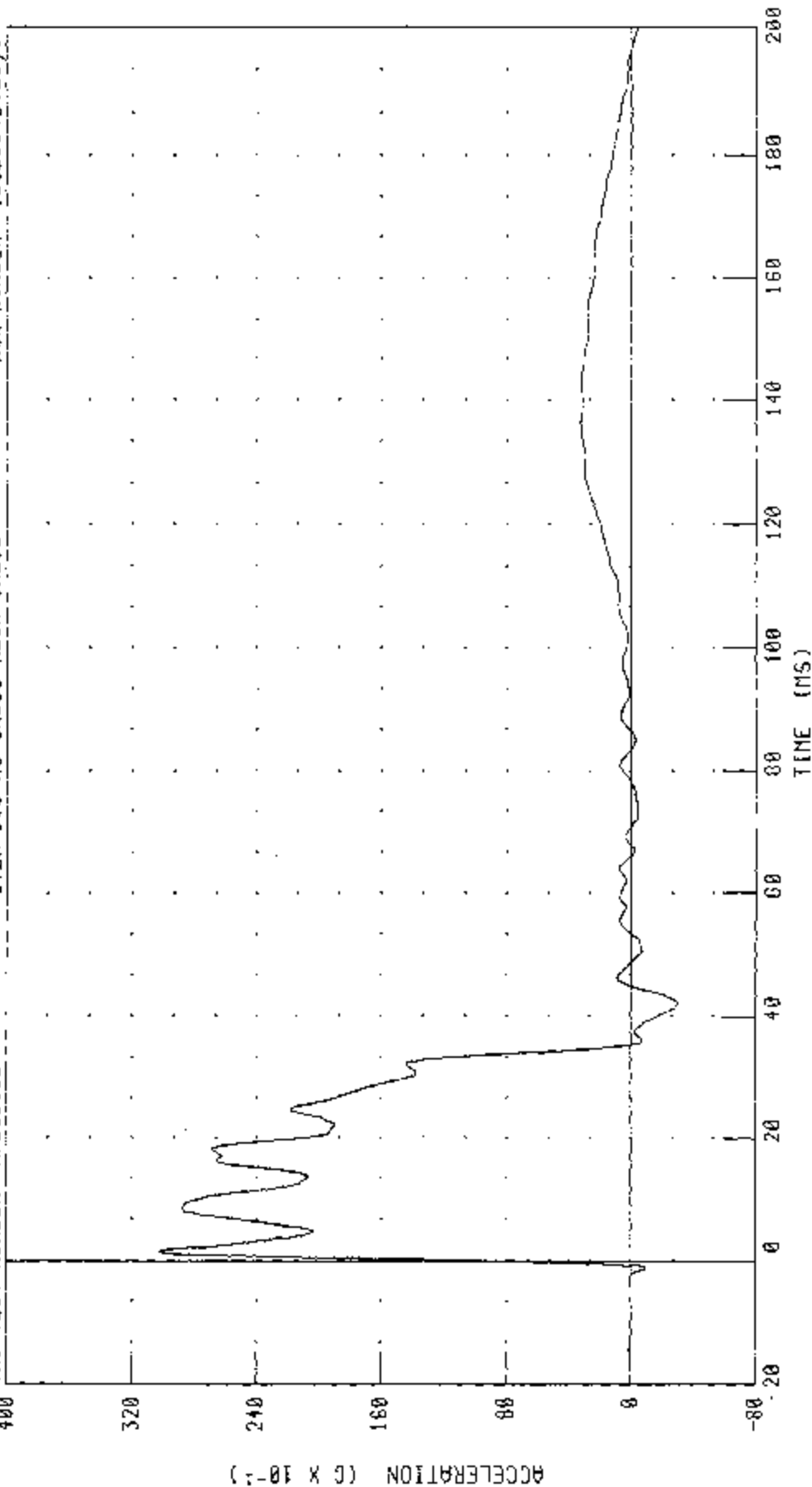
TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 100203.0721;1

572M H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST  
 PENDULUM DECELERATION

TRC TEST NUMBER: NFL90602 572M SID/H3 SN906 NECK CAL02 RUN NUMBER: 100203.0723.1



CHANNEL: PENXC FILTER: CH. CLASS 180

PEAK DATA: 30.26 G @ 1.52 MS, > 90 G @ 47.08 MS

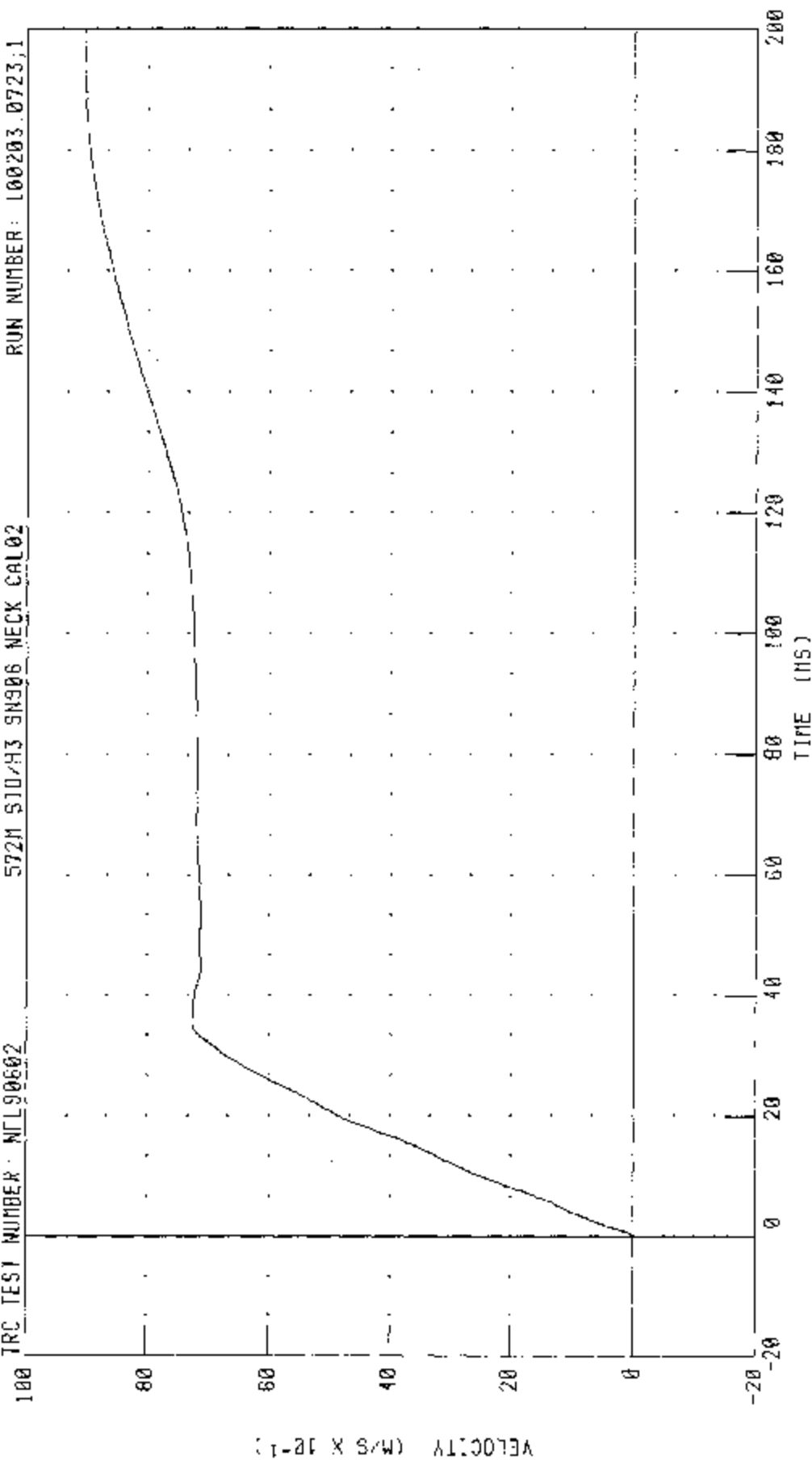
572M H3/S10 DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

INTEGRATED PENDULUM VELOCITY

TRC TEST NUMBER: NCL90602

572M S10/H3 SN906 NECK CAL02

RUN NUMBER: 100203.0723;1



PEAK DATA: 9.06 M/S @ 136.56 MS, --0.01 M/S @ --0.64 MS

CHANNEL PERXVI FILTER CH. CLASS 180

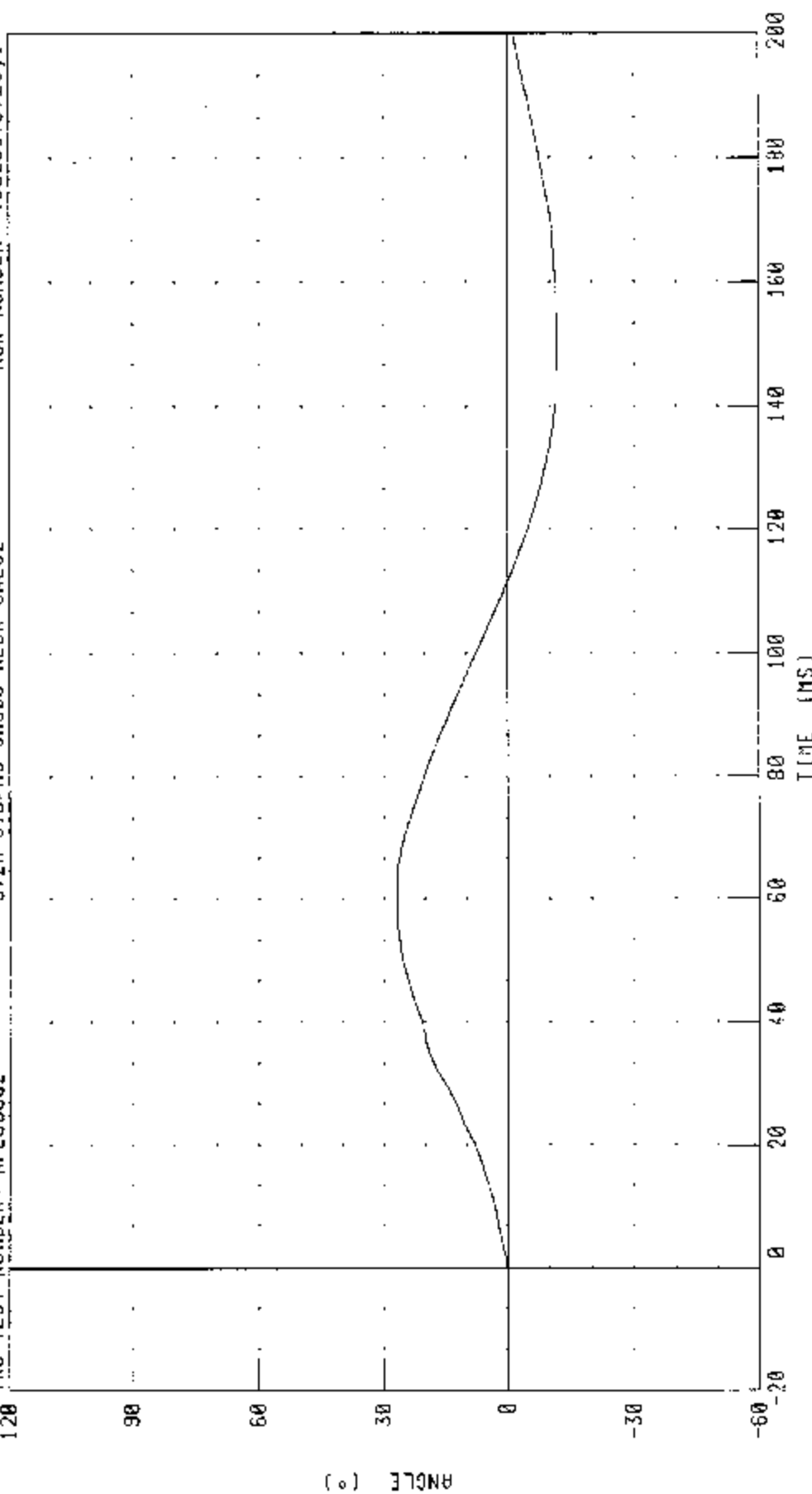
# 572M I13/S10 DUMMY CALIBRATION LEFT LATERAL NECK TEST

ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: NFL90602

572M SID/H3 SN906 NECK CAL02

RUN NUMBER: 100203 0723,1



CHANNEL BETA FILTER: CII CLASS 60

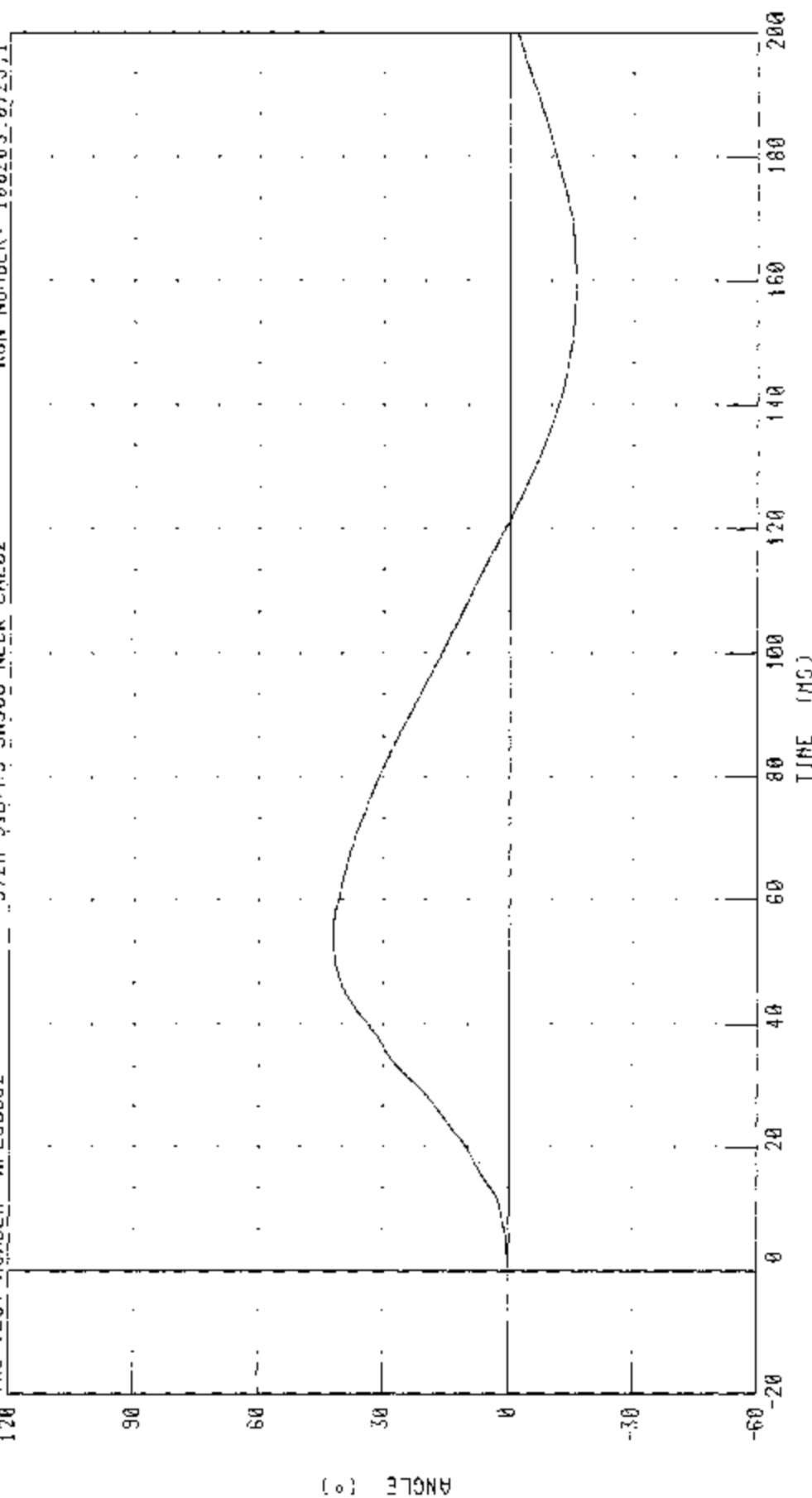
PEAK DATA: 26.87 ° @ 61.92 MS, -11.81 ° @ 150.40 MS

572M H3/S10 DUMMY CALIBRATION -- LEFT LATERAL NECK TEST  
 ROTATION ABOUT OCCIPITAL CONDYLE

ARC TEST NUMBER: NFL90602

572M S10/H3 SN906 NECK CAL02

RUN NUMBER: 100203.0723.1



CHANNEL: TIE10 FILTER: CH. CLASS 60

PEAK DATA: 42.4 ° @ 54.80 MS; -15.74 ° @ 158.80 MS

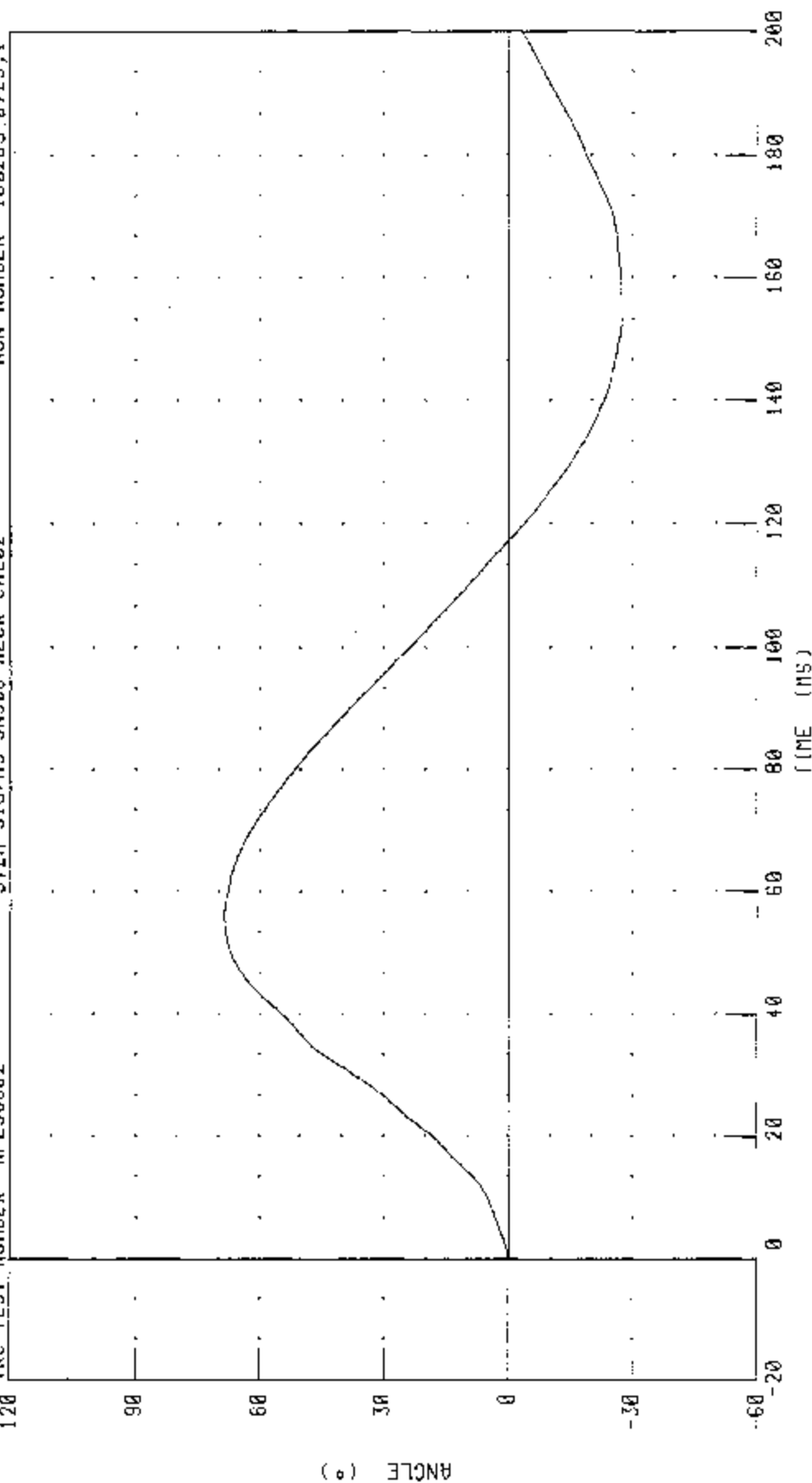
# S72M H3/STD DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

TOTAL ROTATION

TRC TEST NUMBER: NFL90602

572M SIG/H3 SN906 NECK CAL02

RUN NUMBER: 100203.0723,1



CHANNEL: TOTAL FILTER CH: CLASS 60

PEAK DATA 68 66 ° @ 56.16 MS; -27.51 ° @ 156.48 MS

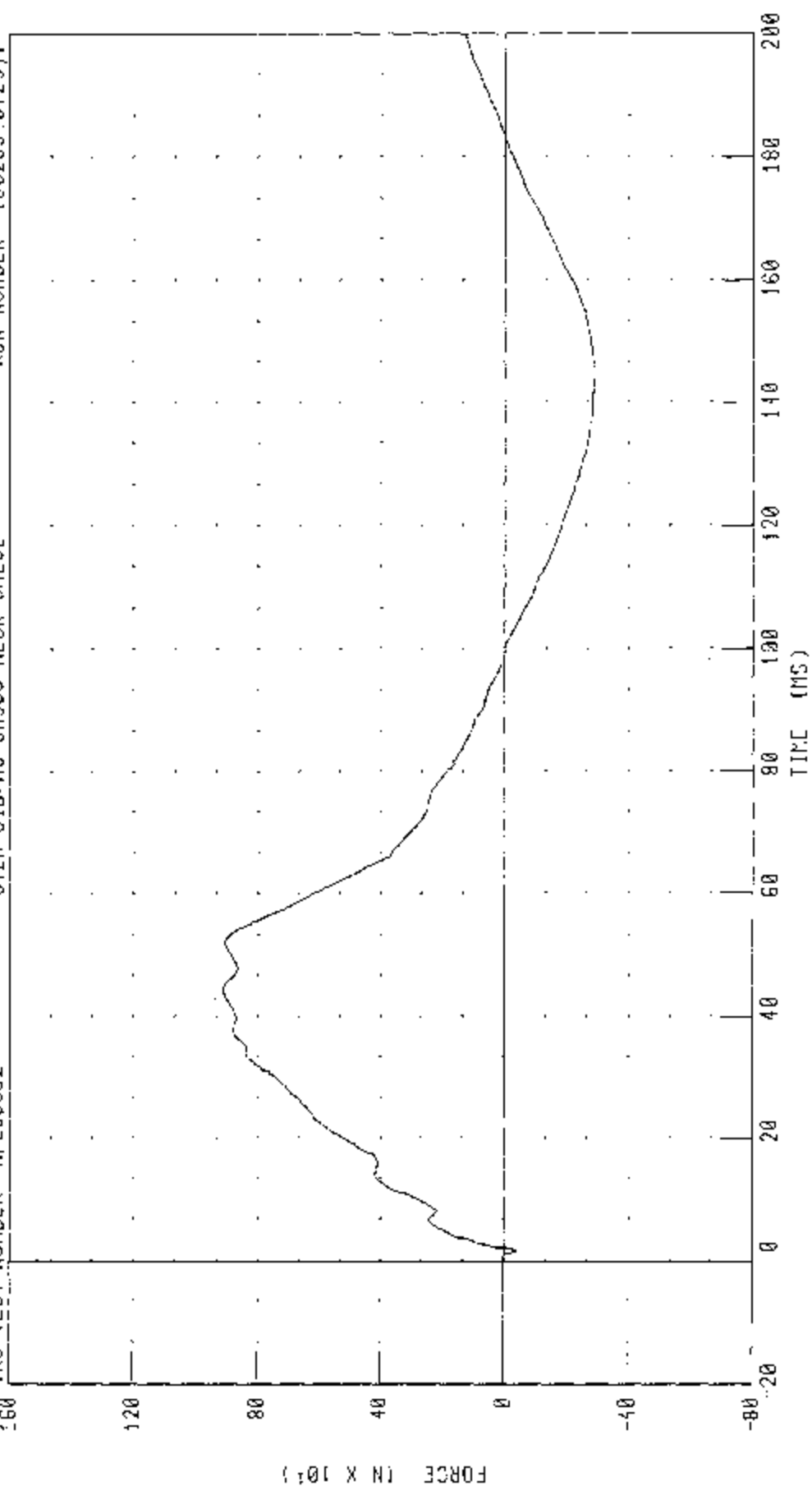
# 572M H3/S1D DUMMY CALIBRATION · LEFT LATERAL NECK TEST

NECK FORCE Y AXIS

IRC TEST NUMBER · NFL90602

572M S1D/H3 SN906 NECK CAL02

RUN NUMBER: 100203.0723.1



PEAK DATA: 309.75 N @ 44.40 MS, -291.02 N @ 143.36 MS

CHANNEL: NEKYF FILTER: CH CLASS 1000



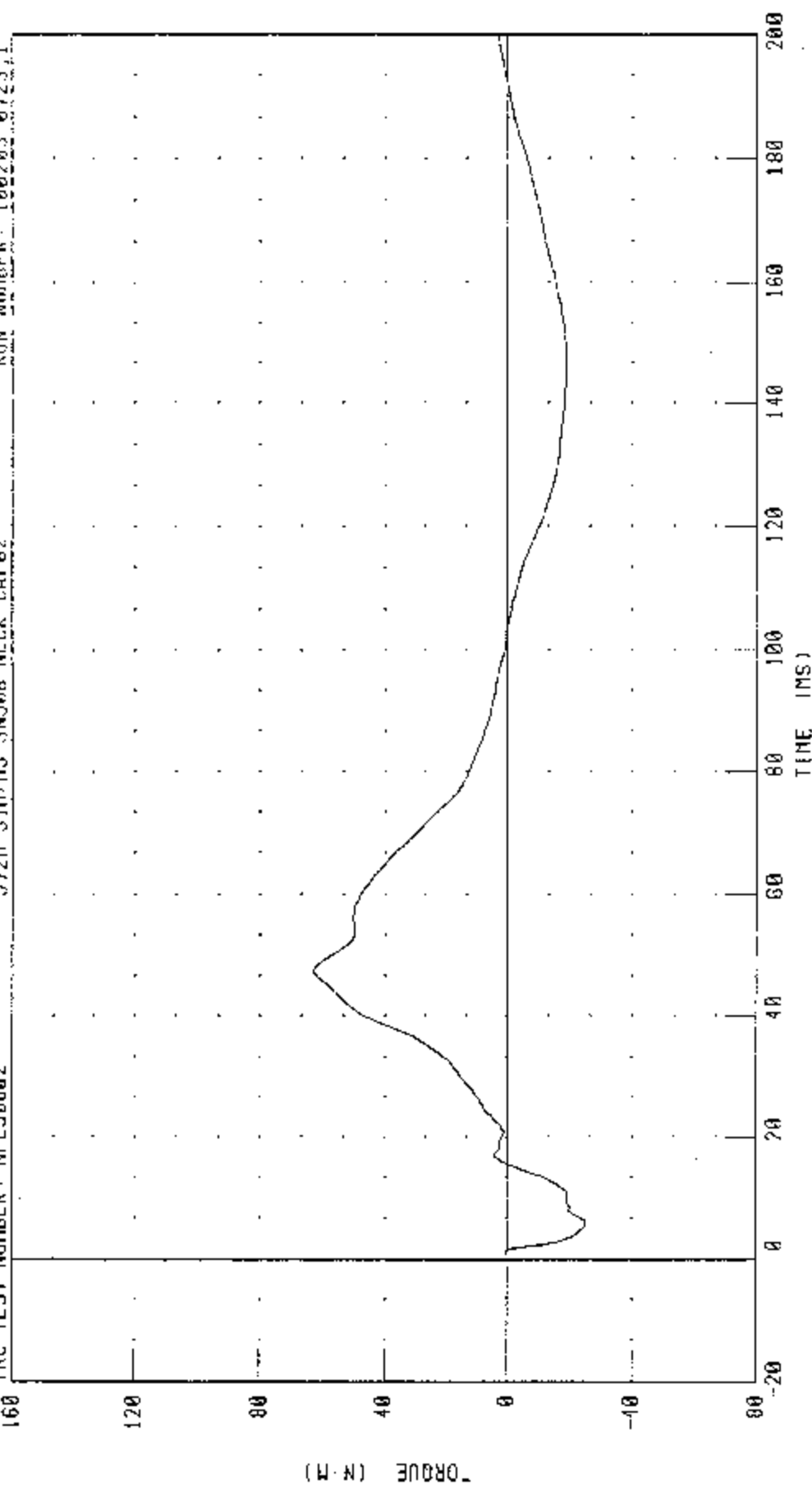
# 572M H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

NECK MOMENT X AXIS

TRC TEST NUMBER: NFL90602

572M SID/H3 SN906 NECK CAL02

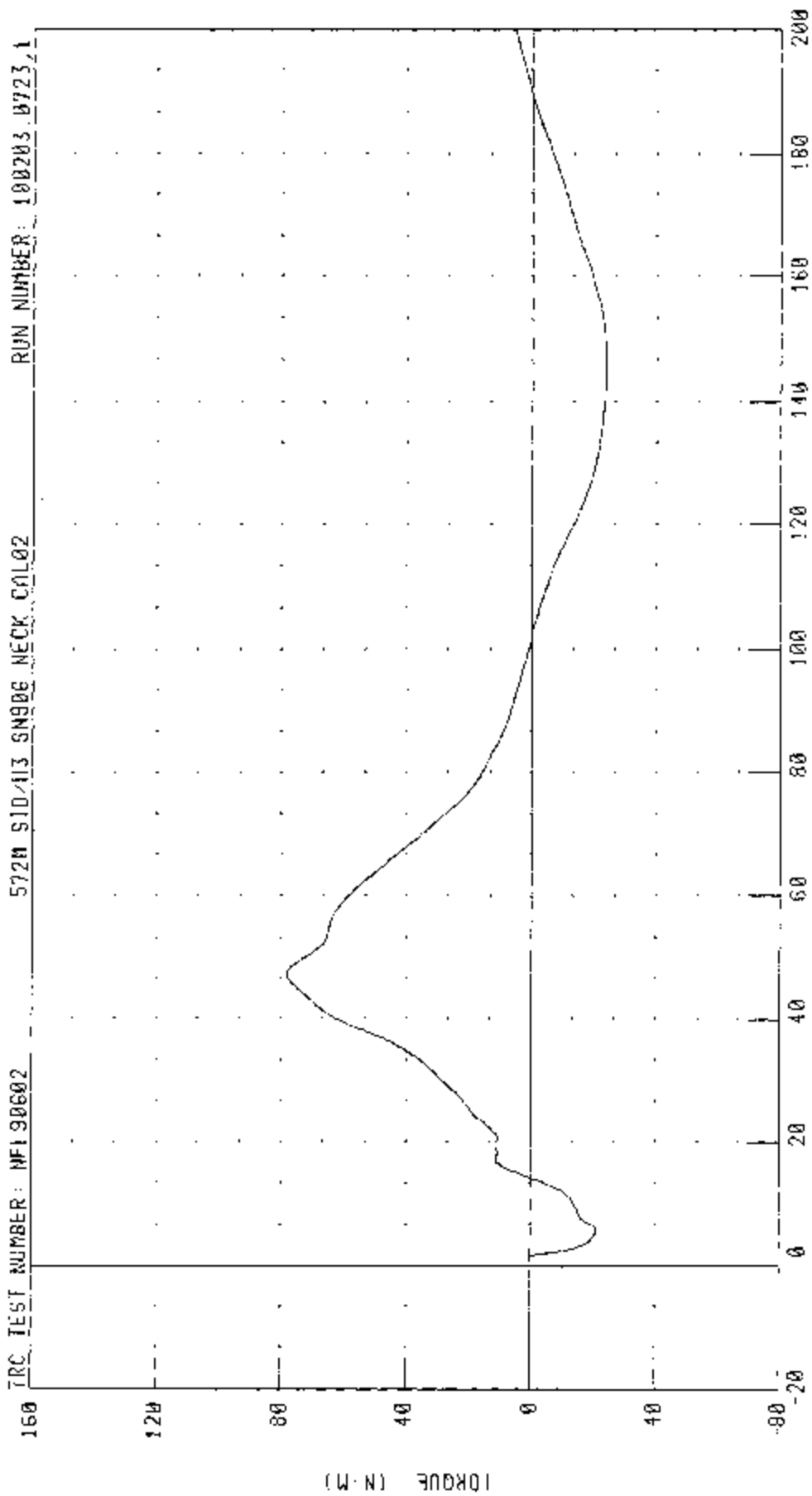
RUN NUMBER: 100203 0723.1



PEAK DATA: 62 80 N·m @ 47 44 ms, -25 21 N·m @ 5.92 ms

CHANNEL: NEKX1 FILTER: CH. CLASS 600

572M H3/S10 DUMMY CALIBRATION LEFT LATERAL NECK FESI  
TOTAL MOMENT ABOUT OCCIPITAL CONDYLE



TRC TEST NUMBER: NF190602

572M S10/113 SN906 NECK CAL02

RUN NUMBER: 100203.0723.1

TIME (MS)

CHANNEL NECKM FRIER: CII CLASS 600 PFAK DATA: 78.20 N H 0 47.36 MS, -23.87 N H 0 145 04 MS

## TRANSPORTATION RESEARCH CENTER INC.

## THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

12-SEP-03

TRC INC.

572F SN906 DAMPER TEST CAL02

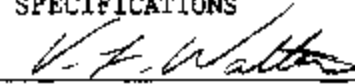
TEST NUMBER: DP90602A, DP90602B, DP90602C

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	63.0 %
VELOCITY	FORCE	667 - 925 N	806 N
2.75 M/S	DISPLACEMENT	29.7 - 34.5 MM	29.9 MM
VELOCITY	FORCE	1706 - 2072 N	1929 N
4.24 M/S	DISPLACEMENT	31.6 - 37.2 MM	34.1 MM
VELOCITY	FORCE	3824 - 4542 N	4480 N
6.17 M/S	DISPLACEMENT	33.3 - 39.6 MM	36.3 MM

DAMPER SETTING = 6.0

TEST MEETS SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 100203.0724;1

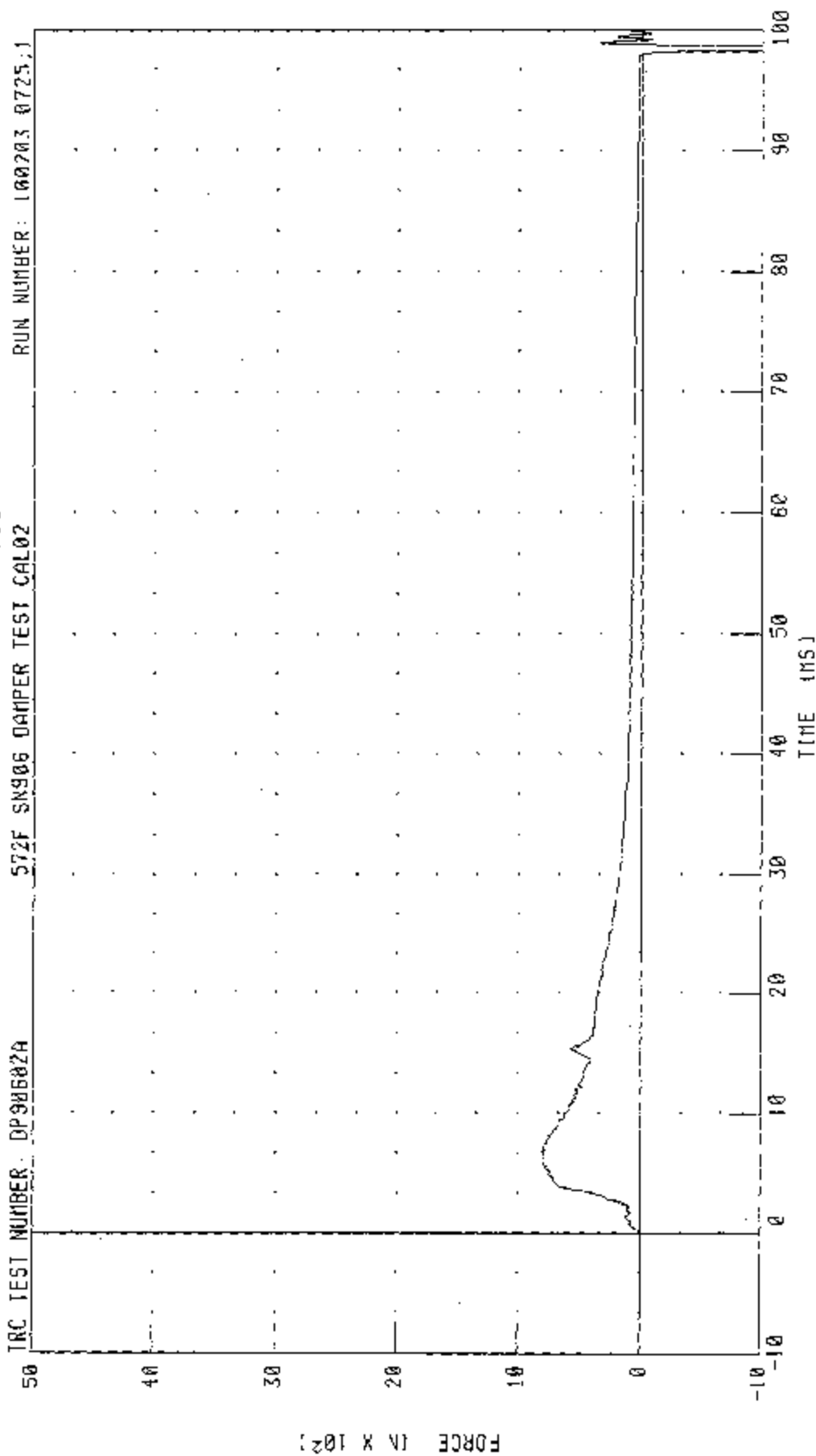
PART 572-F 51.0 THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

572F SN906 DAMPER TEST CAL02

TRC TEST NUMBER: DP90602A

RUN NUMBER: 100703 0725.1



CHANNEL: DAMPF FILTER: CH. CLASS 1000

PEAK DATA: 805.75 N @ 6.80 MS; -2274 95 N @ 98.40 MS

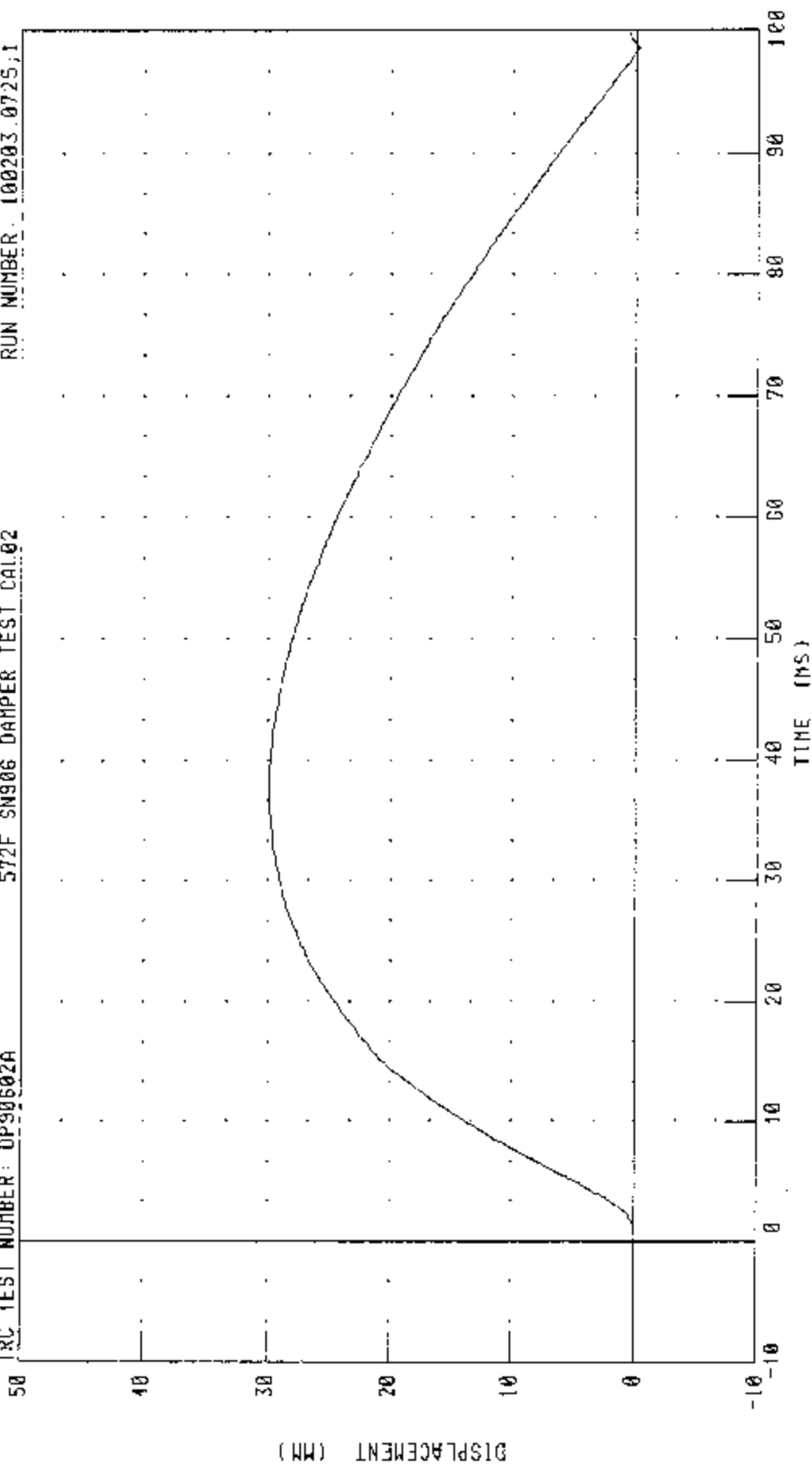
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (30 M/SEC.)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: 0P90502A

572F SN906 DAMPER TEST CAL02

RUN NUMBER: 100203.0725,1



CHANNEL: CSIYD FILTER: CII, CLASS 1000

PEAK DATA: 29.85 MM @ 36.48 MS; -0.23 MM @ 98.64 MS

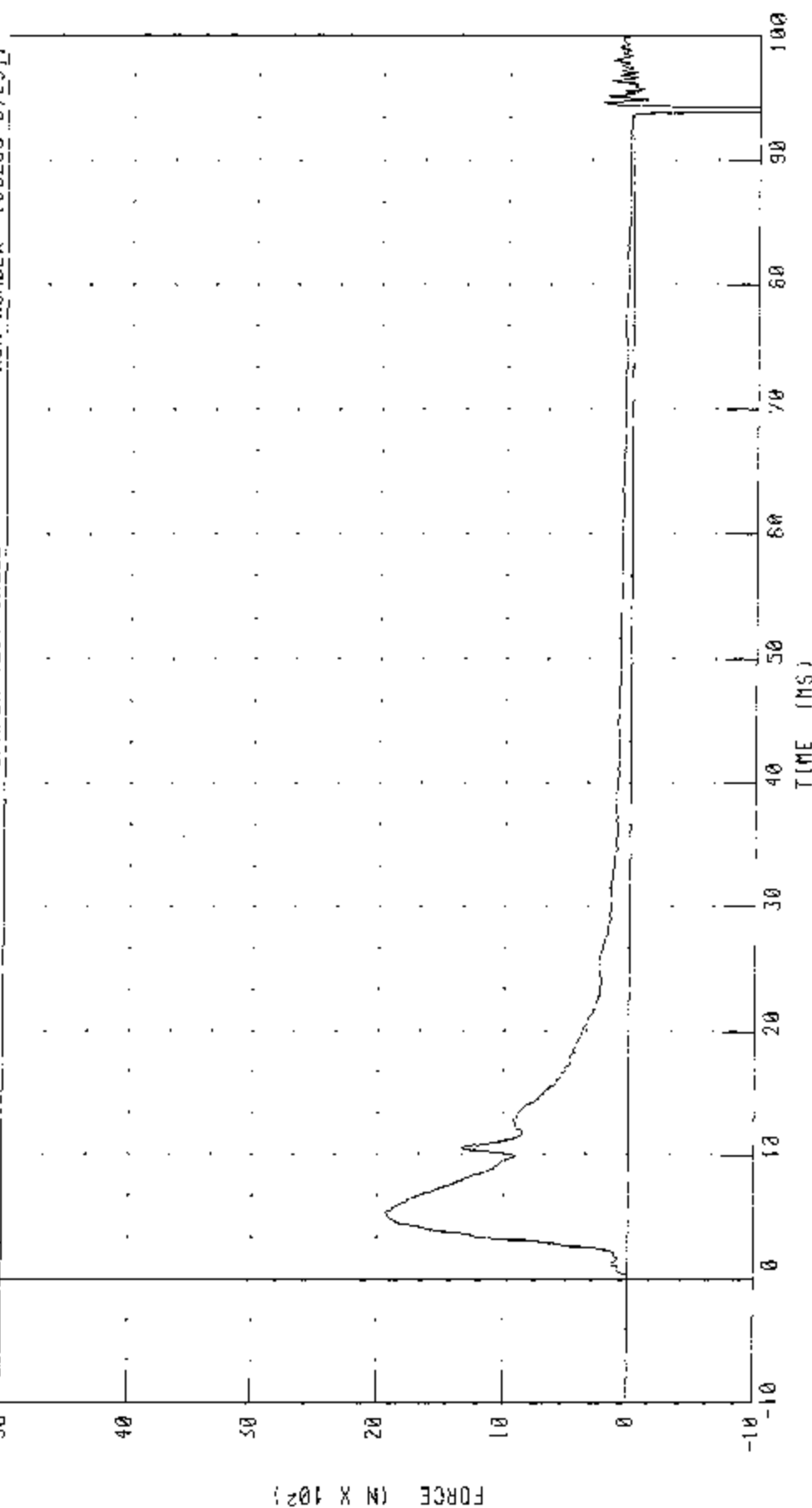
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4 3 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP90602B

572F SN906 DAMPER TEST CAL02

RUN NUMBER: 103203 2725.1



CHANNEL: DAPPF FILTER: CH. CLASS 1000

PEAK DATA 1928 88 N @ 5.28 MS, 2557 41 N @ 94 00 MS

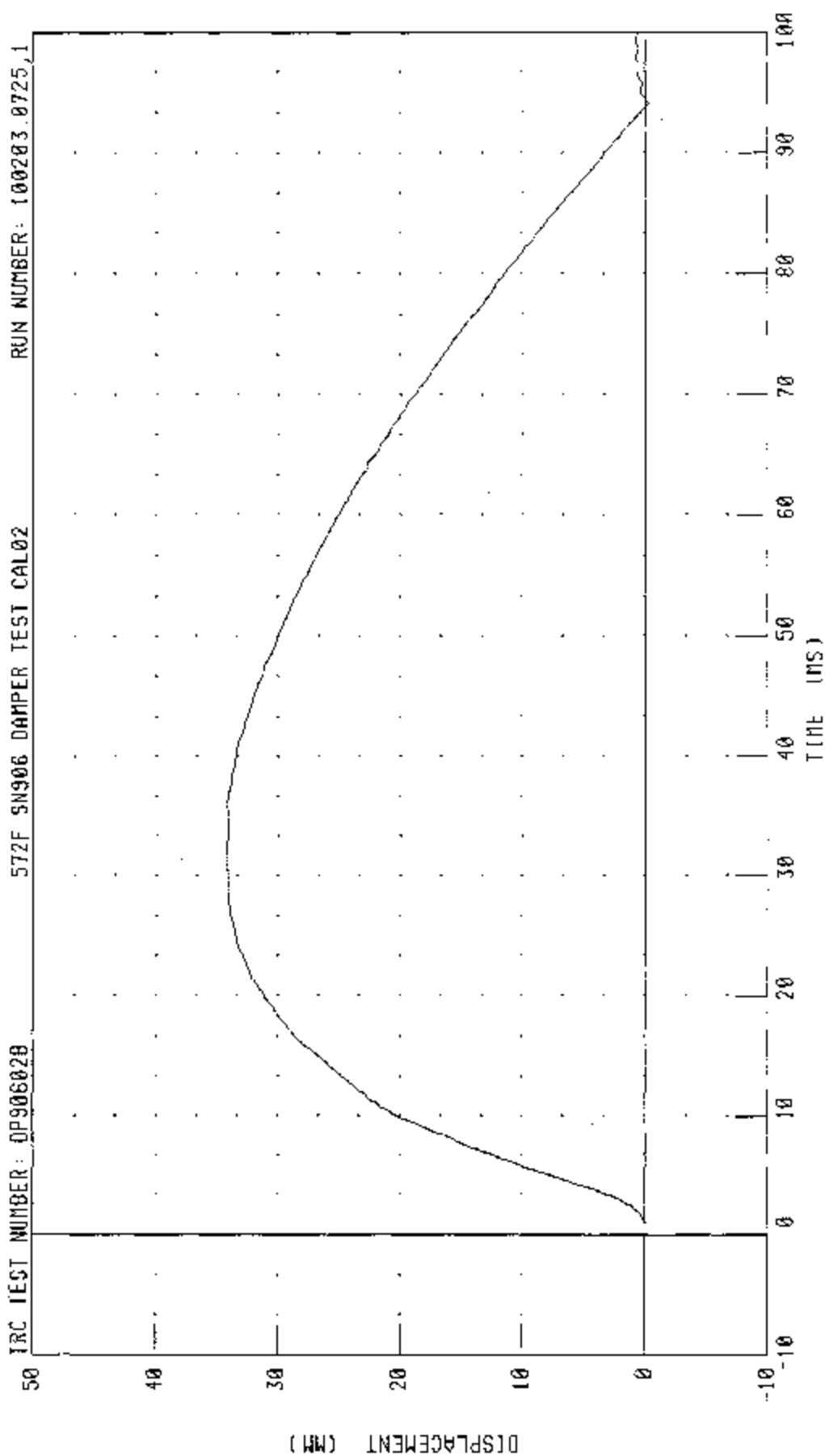
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

IRC TEST NUMBER: 0P906020

572F SN906 DAMPER TEST CAL02

RUN NUMBER: 100203.0725,1



CHANNEL: CSTYD FILTER: CH CLASS 1000

PEAK DATA 34.14 MM @ 31.60 MS; -0.25 MM @ 94.16 MS

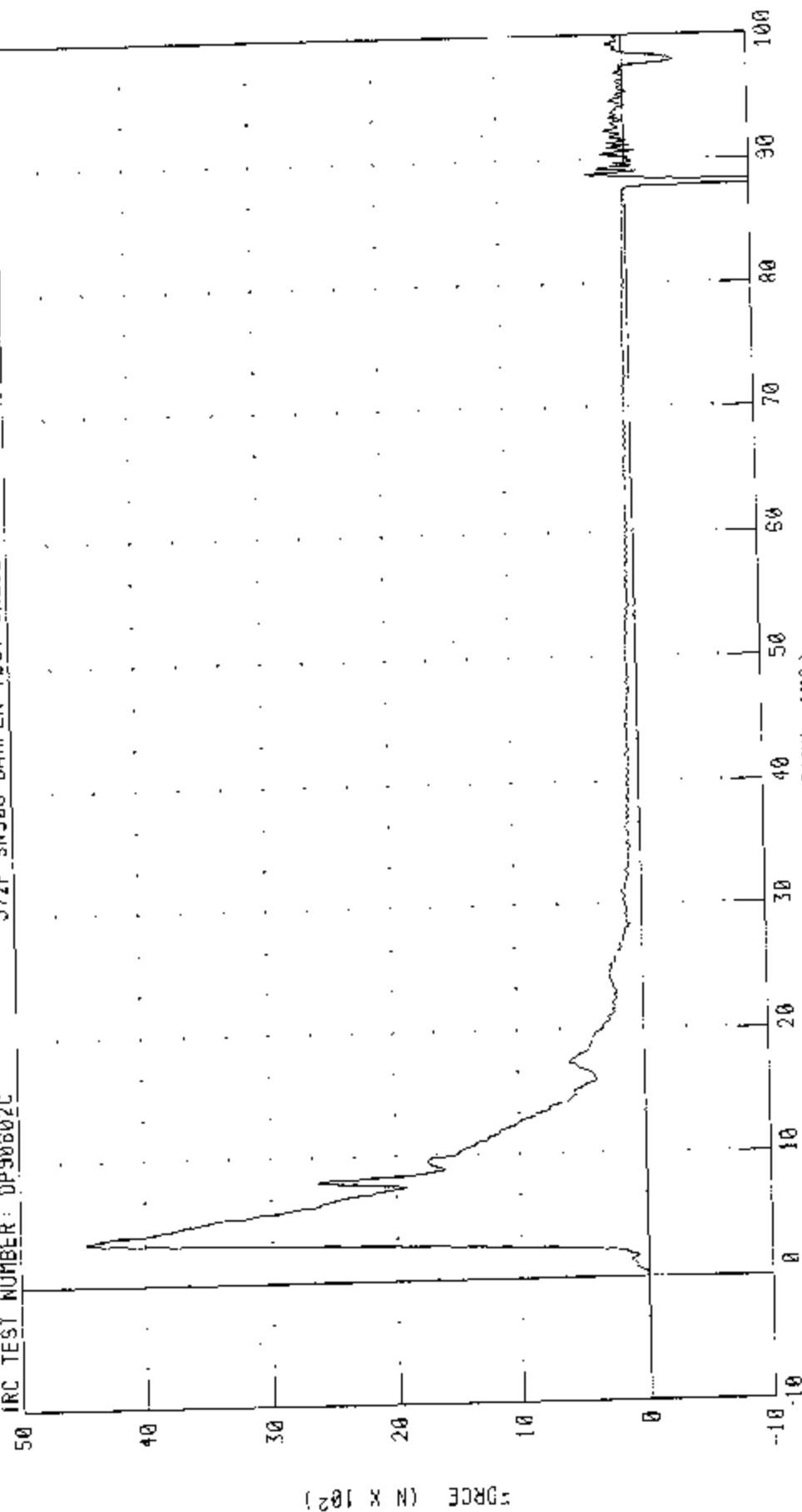
PART 572-F S J.D THORACIC SHOCK ABSORBER CALIBRATION (6.1 N/SEC)

SHOCK ABSORBER RESISTIVE FORCE

572F SN986 DAMPER TEST CAL02

RUN NUMBER 100203 0725.1

IRC TEST NUMBER: DP90602C



PEAK UNTA 4479.55 N @ 3.44 ms, -2512.86 N @ 88.16 ms

CHANNEL DAMPER FILTER CH CLASS 1000



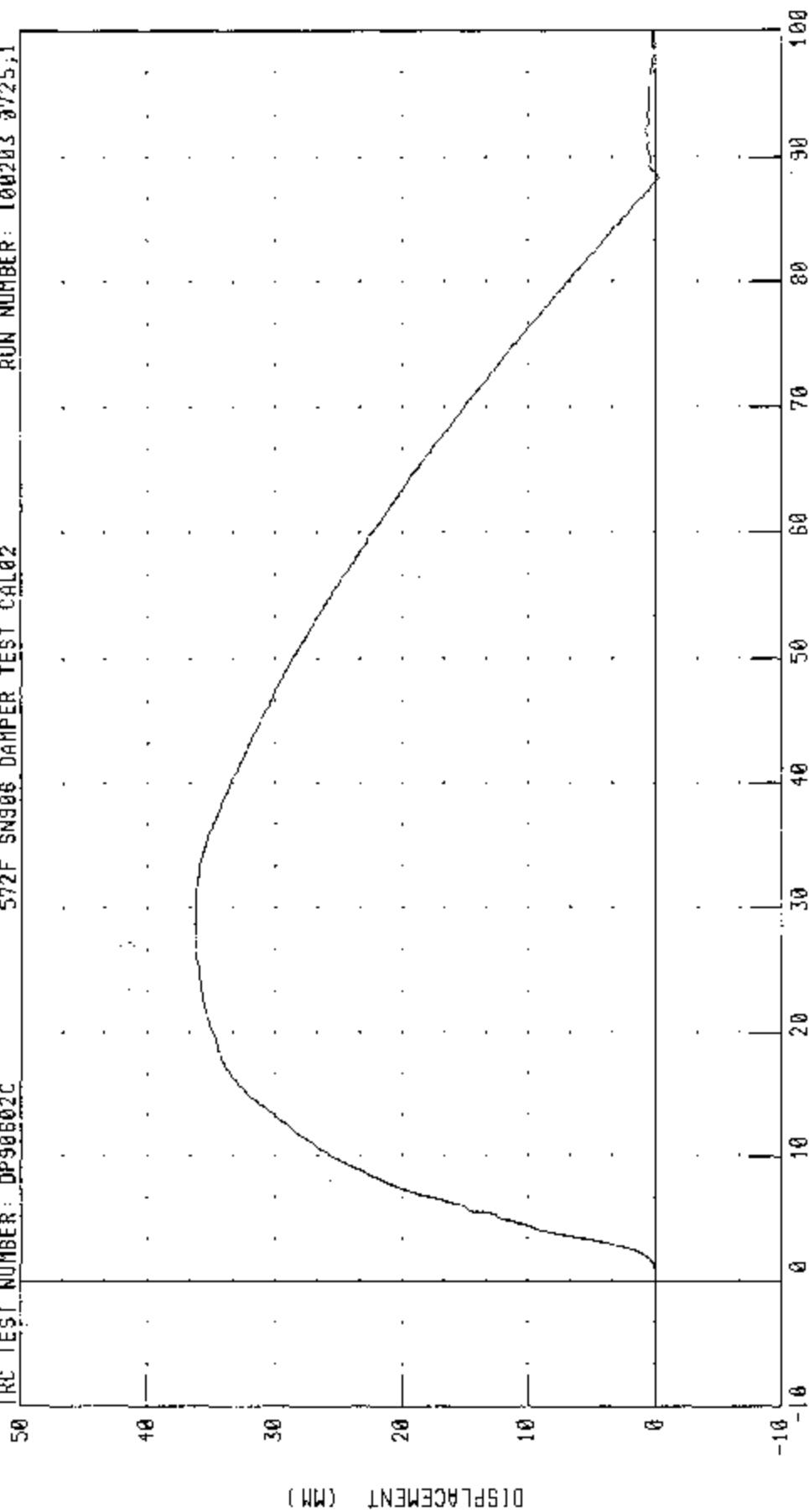
PAR1 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC.)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP90602C

572F SN906 DAMPER TEST CAL02

RUN NUMBER: 100203 0725;1



TIME (MS)

CHANNEL: CSTVD FILTER: CH. CLASS 1000

PEAK DATA: 36 26 MM @ 23 00 MS; -0 24 MM @ 88 32 MS

## TRANSPORTATION RESEARCH CENTER INC.

## LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

15-SEP-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL90602

SID/HIII SN906 L.THORAX CAL02

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	54.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.26 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	37.5 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	37.8 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	16.1 G

TEST MEETS SPECIFICATIONS

TECHNICIAN

V. J. Watter

RUN NUMBER: 100203.0724;1

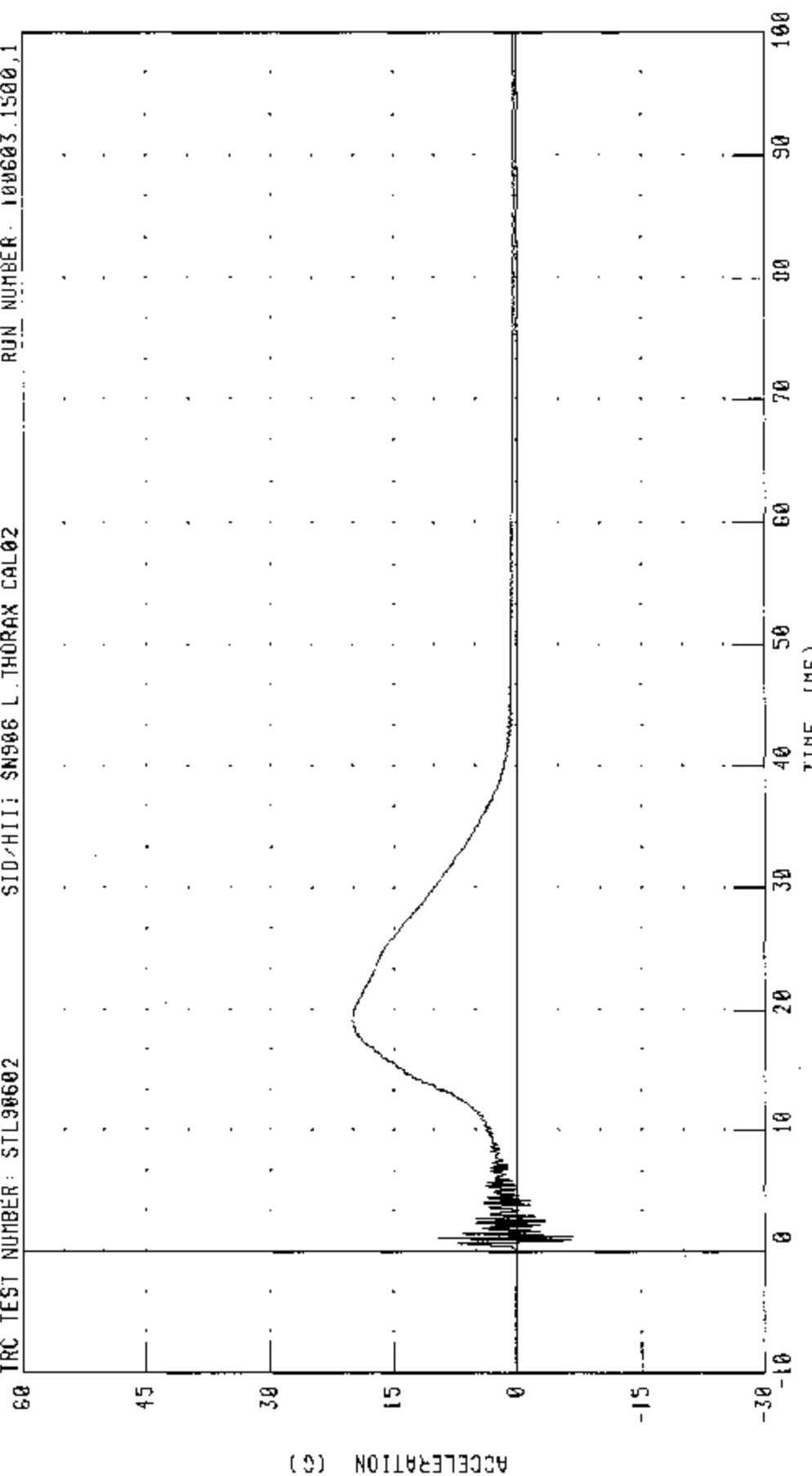
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION

TRC TEST NUMBER: STL98602

SID/HII: SN906 L THORAX CAL02

RUN NUMBER: 100603.1500.1



CHANNEL: PENXC FILTR: CH. CLASS 1800

PEAK DATA: 20.06 G @ 19.20 MS; -6.68 G @ 1.28 MS

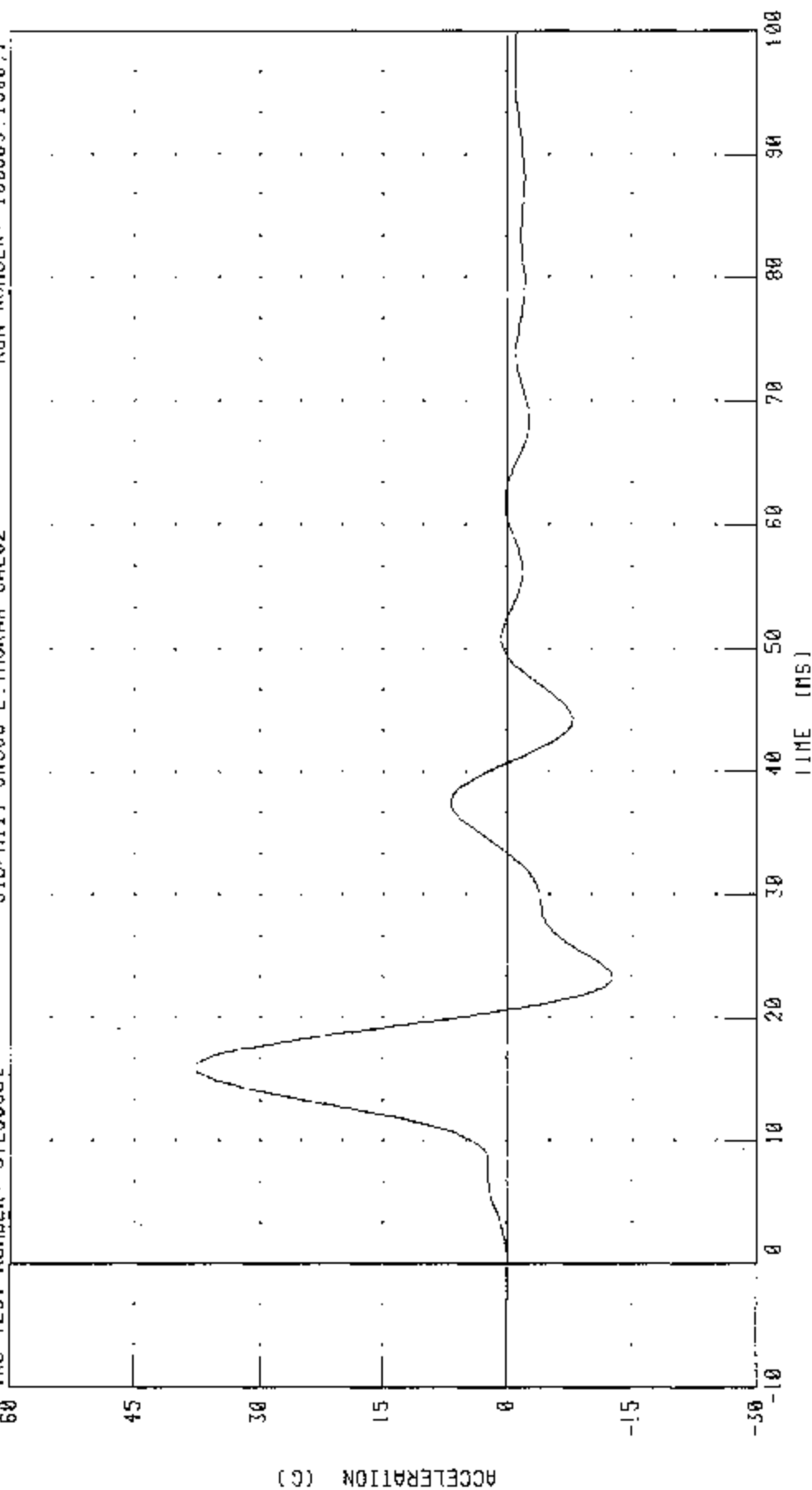
PART 572-F 5.1.D THORAX CALIBRATION -- (LEFT SIDE IMPACT)

LEFT UPPER RIB ACCELERATION Y AXIS

TRC TEST NUMBER: STL90602

SID/HI11 SN906 L THORAX CAL02

RUN NUMBER: 100603.1500.1



CHANNEL: LURY6 FILTER: FIR 100

PEAK DATA 37.51 G @ 10.25 MS; -12.60 G @ 23.13 MS

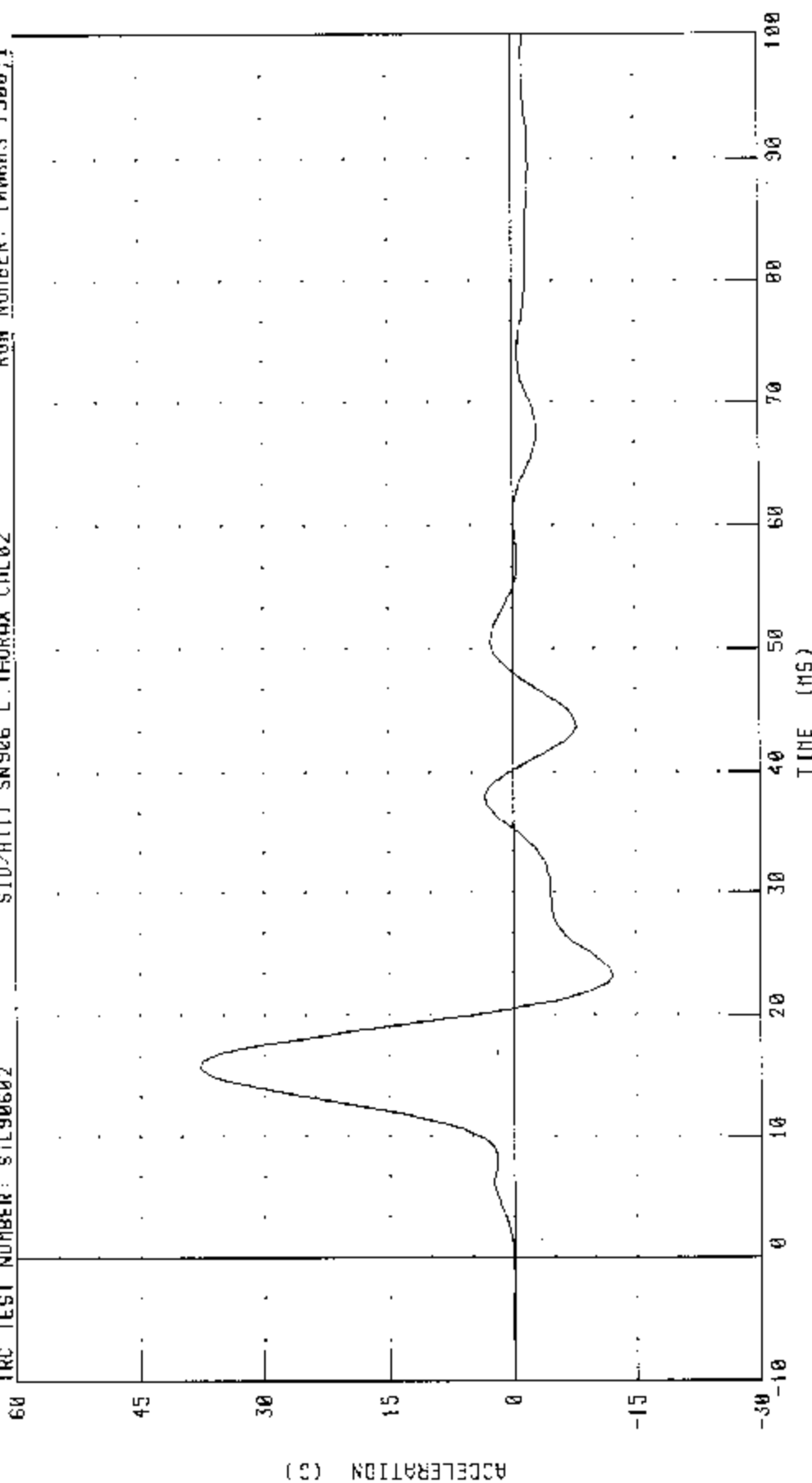
# PART 572 F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT LOWER RIB ACCELERATION Y AXIS

TRC TEST NUMBER: STL90602

SID/HIT1 SN906 L THORAX CAL02

RUN NUMBER: 100603 1500.1



CHANNEL: LLRYC FILTER: FIR 100

PEAK DATA: 37.76 G @ 15.63 MS, -12.18 G @ 23.13 MS

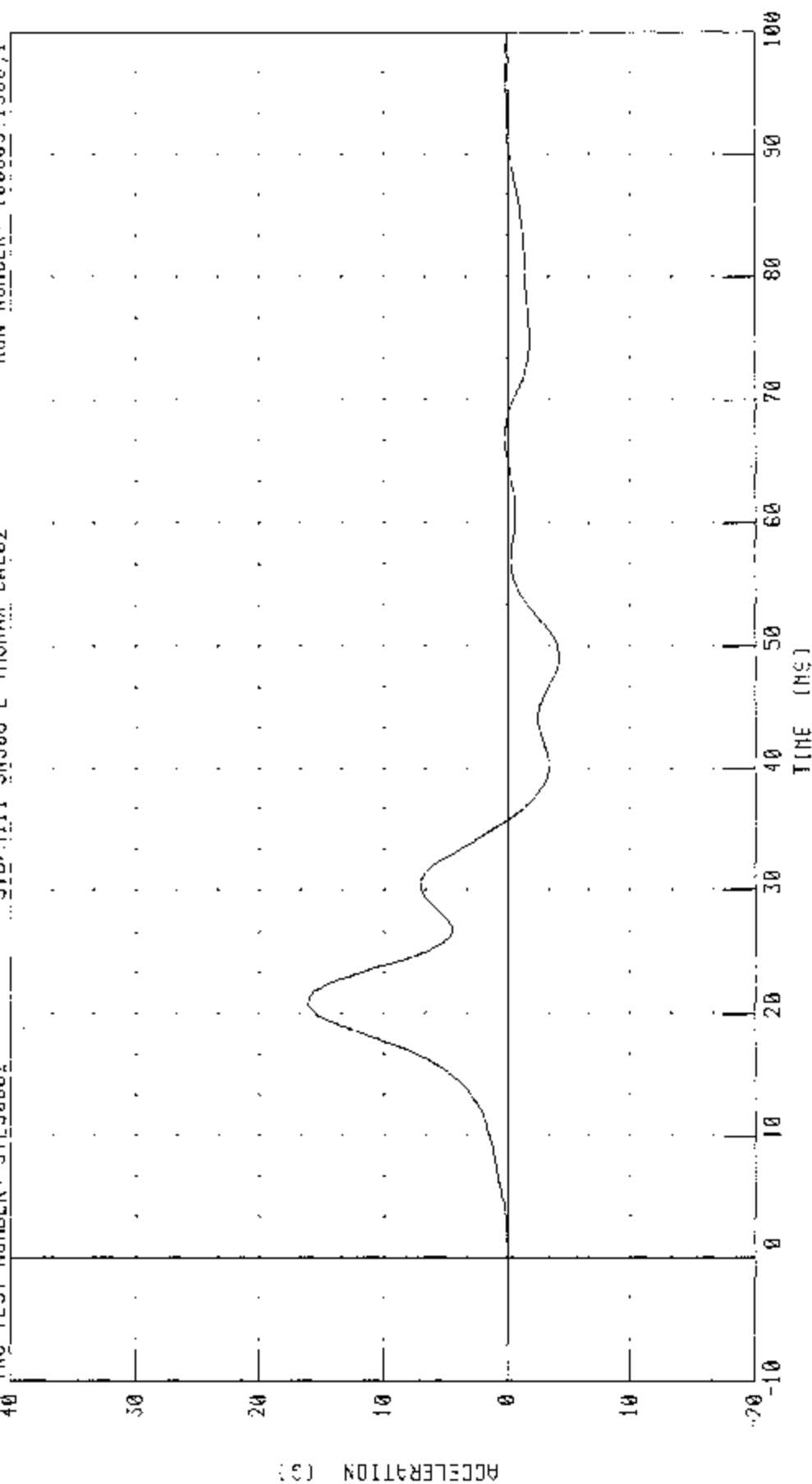
# PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

TRC TEST NUMBER: STL90602

SID-FIT SN906 L THORAX CAL02

RUN NUMBER: 100603.1500.1



CHANNEL: T12YC FILTER: FIR 100

PEAK DATA 16.10 G @ 21.25 MS, -4.20 G @ 49.37 MS

## TRANSPORTATION RESEARCH CENTER INC.

## LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

15-SEP-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL90602

SID/HIII SN906 L.PELVIS CAL02

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	55.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.28 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	52.6 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	6.0 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

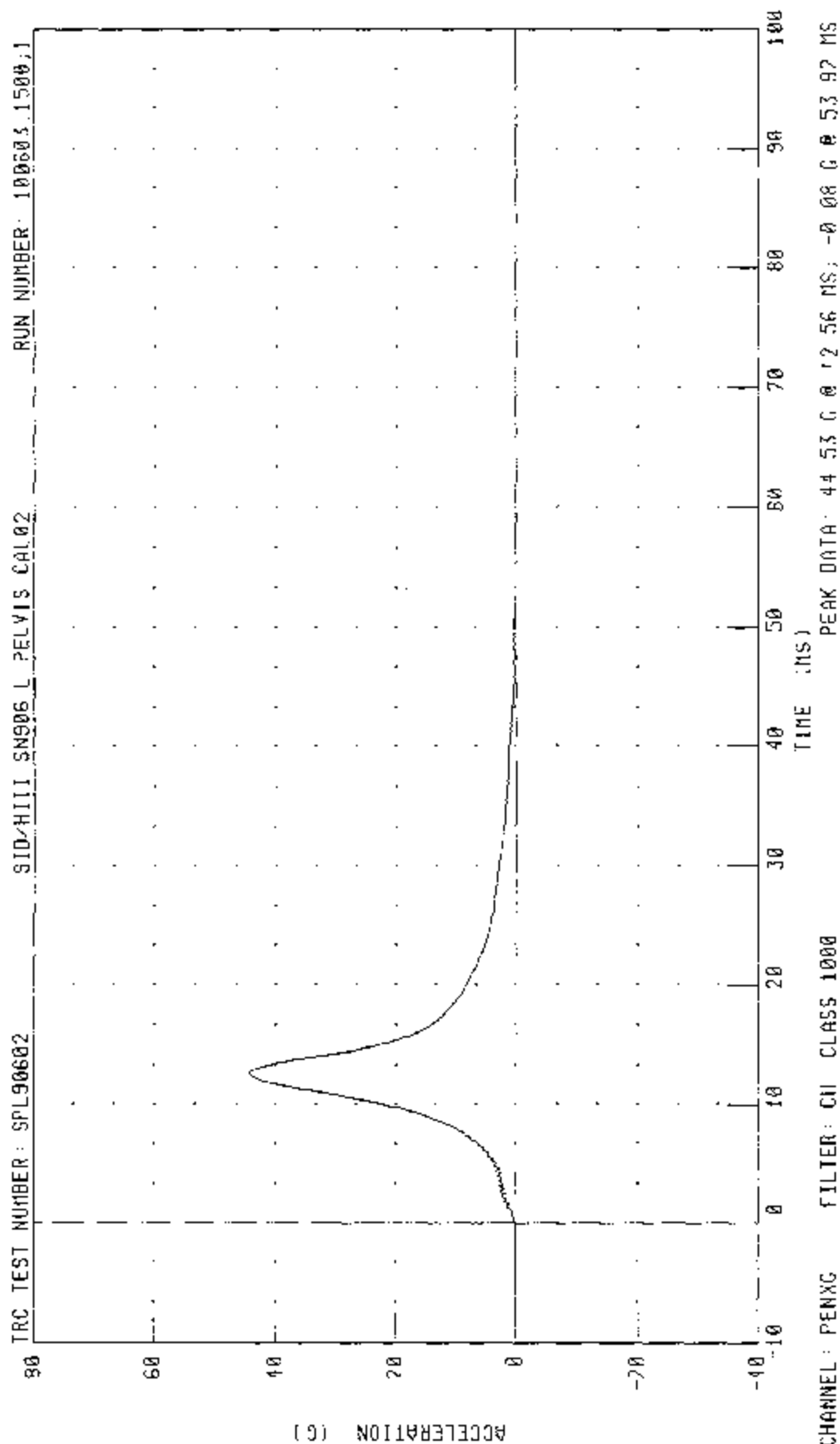
TECHNICIAN

V.L. Walter

RUN NUMBER: 100203.0723;1

# PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION





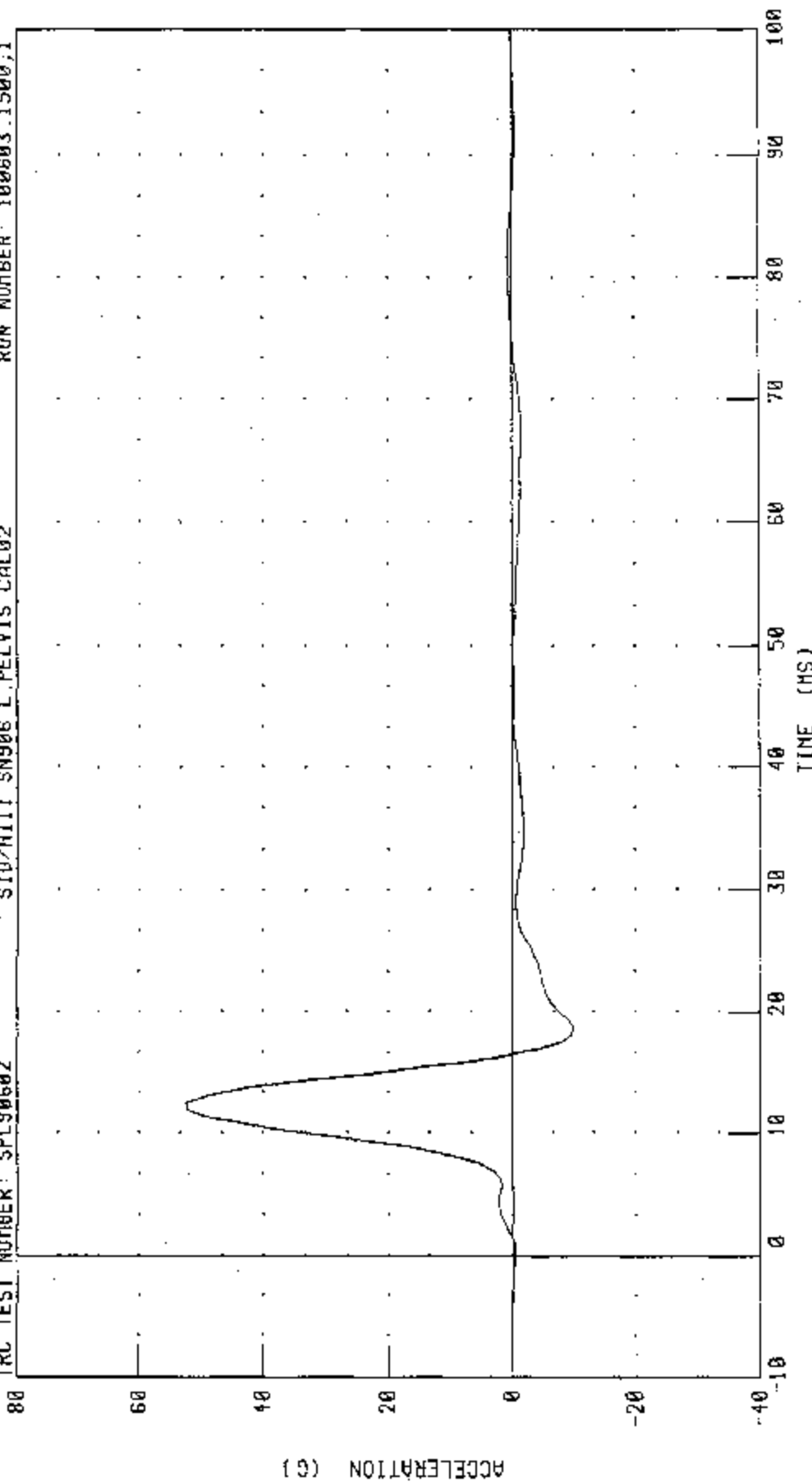
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

TRC TEST NUMBER: SPL90602

SID/HII SN906 L PELVIS CAL02

RUN NUMBER: 100603.1500.1



CHANNEL: PCVYG FILTER: FIR 100

PEAK DATA: 52.58 G @ 12.50 MS, -9.84 G @ 18.75 MS

### Calibration Test Results

#### Post-Test

SID HII: 055

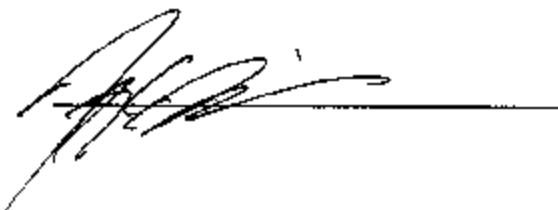
External Dimensions:	The dummy passed all external dimension requirements.
Lateral Head Drop Test:	The head passed all lateral drop test requirements.
Lateral Neck Test:	The neck passed all impact test requirements.
Lateral Thorax Impact Test:	The thorax passed all impact test requirements.
Thoracic Shock Absorber Test:	The thoracic shock absorber was not tested at this time.
Lumbar Flexion Test:	The dummy met the lumbar flexion test requirements.
Abdominal Compression Test:	The abdomen met the compression test requirements.
Pelvis Impact Test:	The lateral pelvis passed all impact test requirements.

**Transportation Research Center Inc.**  
**SID/HIII Dummy**  
**External Dimensions**  
**Serial No. 055 Calibration No. 09**


Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	909 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	511 mm	Yes
Hip Pivot Height	HP	99.1 REF mm	99.1 mm	
Rib From Backline	RD	228.6 - 241.3 mm	223 mm	No *
Knee Pivot From Backline	KH	510.5 - 525.8 mm	525 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	492 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	366 mm	Yes
Top Rib Width From C/L	RW-1	165.1 - 180.3 mm	171 mm	Yes
Bottom Rib Width From C/L	RW-2	165.1 - 180.3 mm	172 mm	Yes
Difference Between Top & Bottom Rib Width from C/L		$\leq$ 2.5 mm	1.0 mm	Yes

\* Test Does Not Meet Specifications

Technician



Approved



**TRE**

# Transportation Research Center Inc.

572M Left Left Lateral Head Test

SID HIII Serial No. 055 Calibration No. 09 - 1

Test Date 10/07/2003

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Peak Resultant Acceleration	115 - 150 g	132.3 g	Yes
Peak Longitudinal Acceleration	15 g Max	7.8 g	Yes
Is Acceleration Curve Unimodal?	Yes	Yes	Yes

Comments:

Technician



Approved



10.07.2003 07:05:10 609



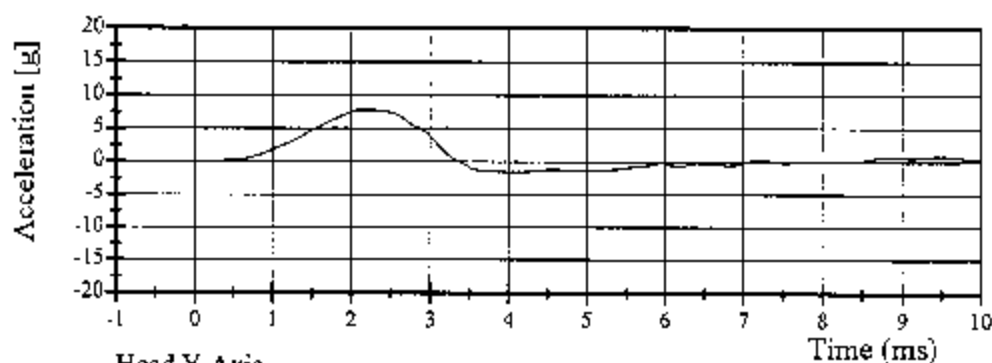
# Transportation Research Center Inc.

572M Left Left Lateral Head Test

STD HIII Serial No. 055 Calibration No. 09 - 1

Test Date 10/07/2003

Head X-Axis

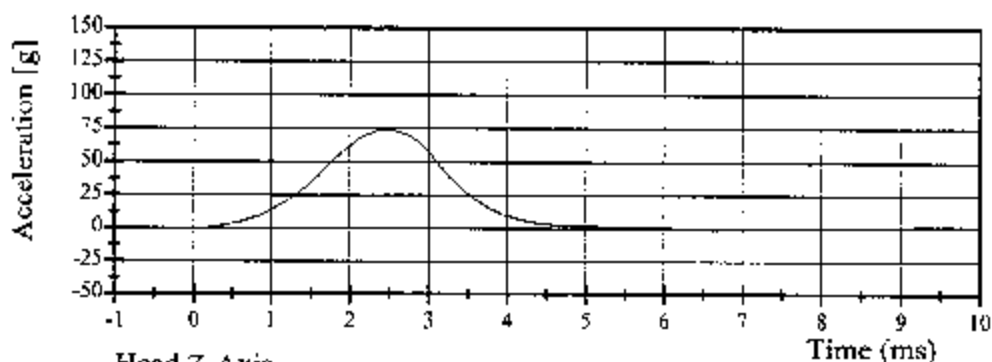


Filter Class: 1000

Max: 7.8 g at 2.2 ms

Min: -1.5 g at 4.1 ms

Head Y-Axis

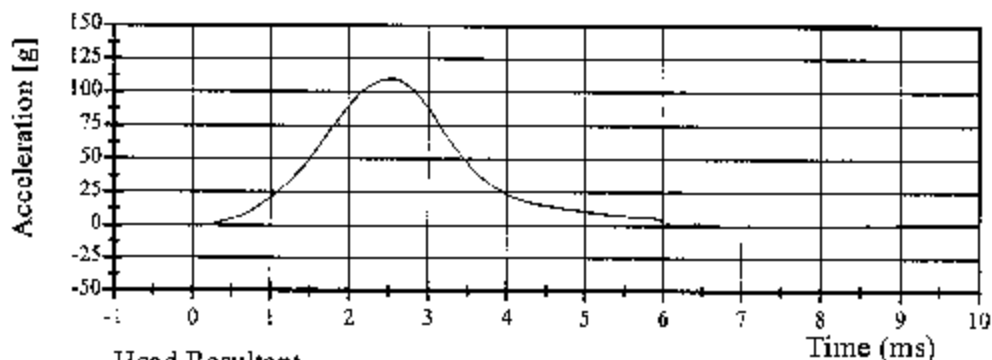


Filter Class: 1000

Max: 74.0 g at 2.5 ms

Min: -1.2 g at 6.6 ms

Head Z-Axis

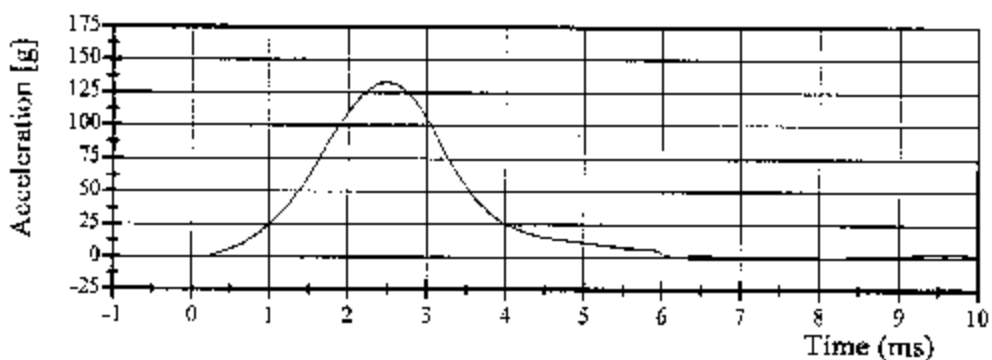


Filter Class: 1000

Max: 109.6 g at 2.6 ms

Min: -0.5 g at 7.6 ms

Head Resultant



Filter Class: 1000

Max: 132.3 g at 2.5 ms

Min: 0.0 g at 2.9 ms

10.07.2003 07:05:11 609



# Transportation Research Center Inc.

572M Left Lateral Neck Test

STD HIII Serial No. 055 Calibration No. 09 - 1

Test Date 10/07/2003

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	30 %	Yes
Impact Velocity	6.89 - 7.13 m/s	7.06 m/s	Yes
Integrated Pendulum Velocity			
10 ms	1.96 - 2.55 m/s	2.32 m/s	Yes
20 ms	4.12 - 5.10 m/s	4.66 m/s	Yes
30 ms	5.73 - 7.64 m/s	6.65 m/s	Yes
40 - 70 ms	6.27 - 7.64 m/s	7.19 - 7.33 m/s	Yes
Peak D Plane Rotation	66 - 82 °	70.6 °	Yes
Rotation Decay Time To 0° From Peak Angle	58 - 67 °	59.8 °	Yes
Peak Moment About Occipital Condyles	73.0 - 88.0 N·m	83.43 N·m	Yes
Moment Decay Time To 0 N·m From Peak Moment	49 - 64 ms	54.56 ms	Yes
Time Between Peak Rotation and Peak Moment	2 - 16 ms	11.04 ms	Yes

Comments:

Technician



Approved



10.07.2003 07:28:54 500



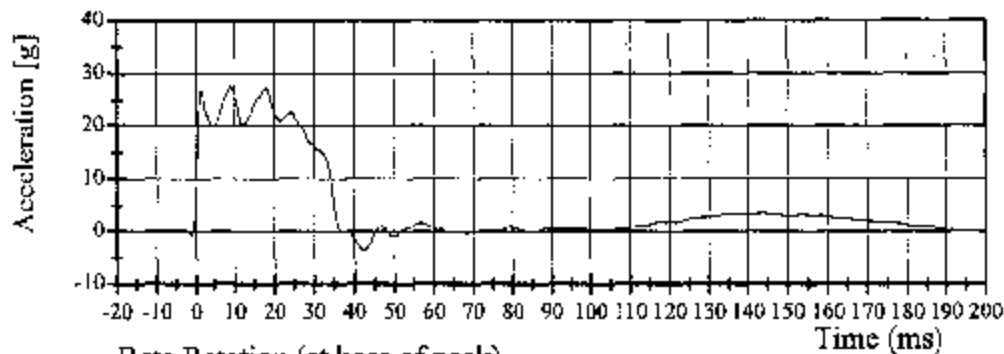
# Transportation Research Center Inc.

572M Left Lateral Neck Test

SID HIII Serial No. 055 Calibration No. 09 - 1

Test Date 10/07/2003

Pendulum Deceleration

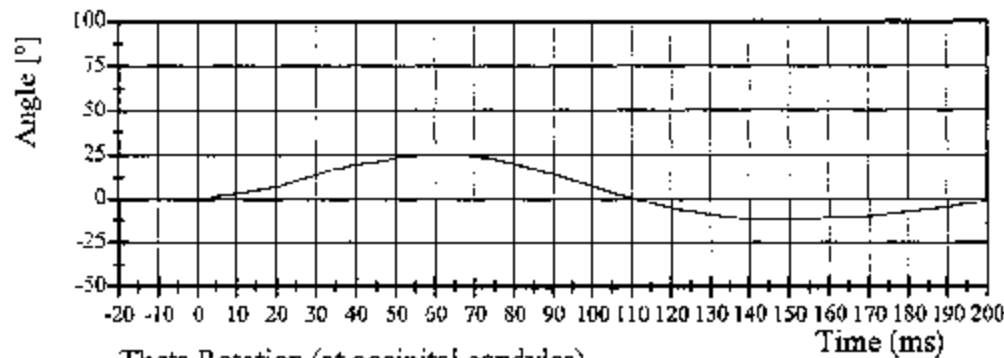


Filter Class: 180

Max: 27.5 g at 9.0 ms

Min: -3.6 g at 42.5 ms

Beta Rotation (at base of neck)

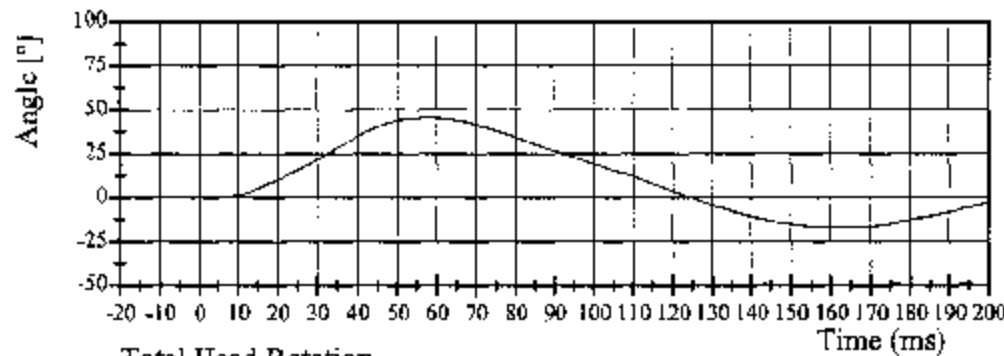


Filter Class: 60

Max: 25.5 ° at 61.8 ms

Min: -12.3 ° at 147.6 ms

Theta Rotation (at occipital condyles)

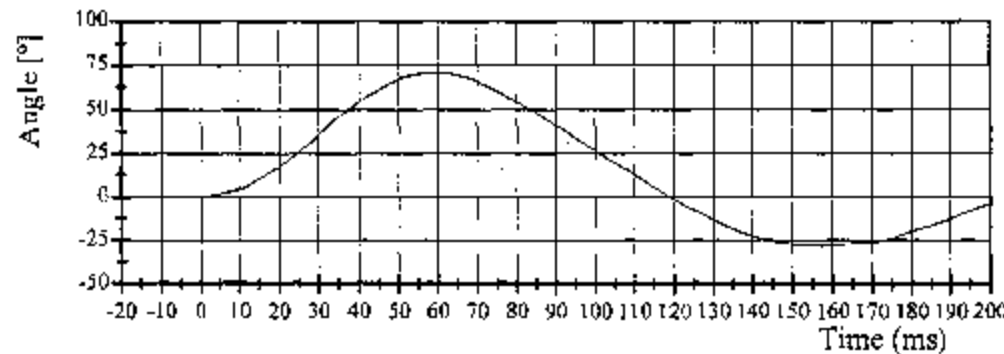


Filter Class: 60

Max: 45.2 ° at 57.7 ms

Min: -16.7 ° at 160.9 ms

Total Head Rotation



Filter Class: 60

Max: 70.6 ° at 59.2 ms

Min: -28.2 ° at 156.6 ms

10.07.2003 07:28:55 500



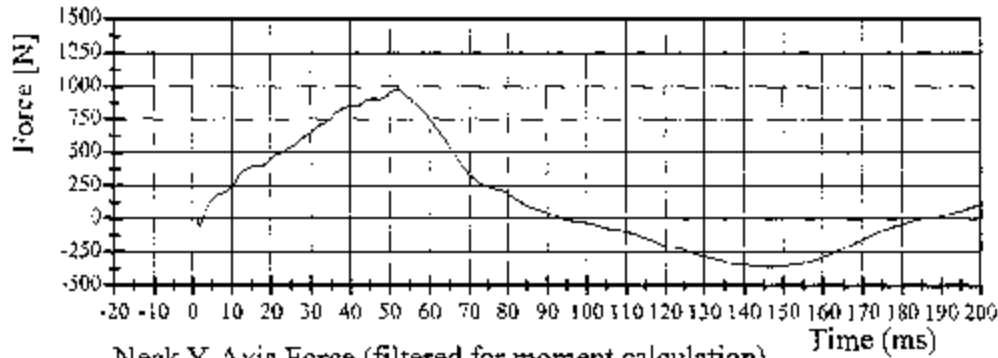
# Transportation Research Center Inc.

572M Left Lateral Neck

SID HII Serial No. 055 Calibration No. 09 - 1

Test Date 10/07/2003

Neck Y-Axis Force

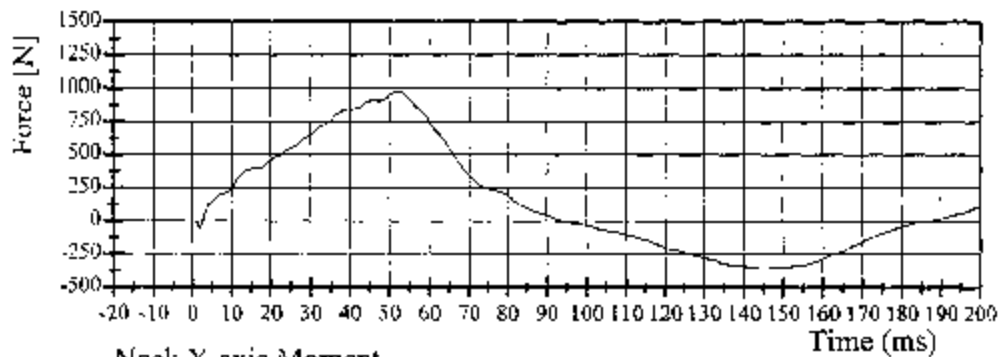


Filter Class: CFC 1000

Max: 979.9 N at 52.2 ms

Min: -358.2 N at 146.6 ms

Neck Y-Axis Force (filtered for moment calculation)

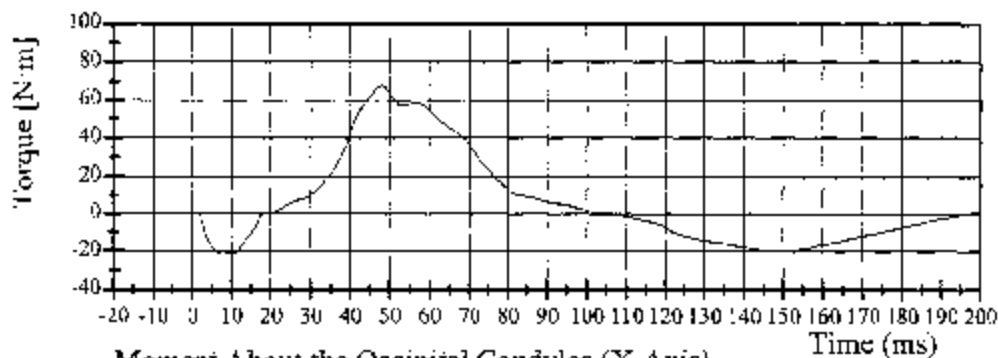


Filter Class: CFC 600

Max: 979.5 N·m at 52.2 ms

Min: -357.8 N·m at 146.7 m

Neck X-axis Moment

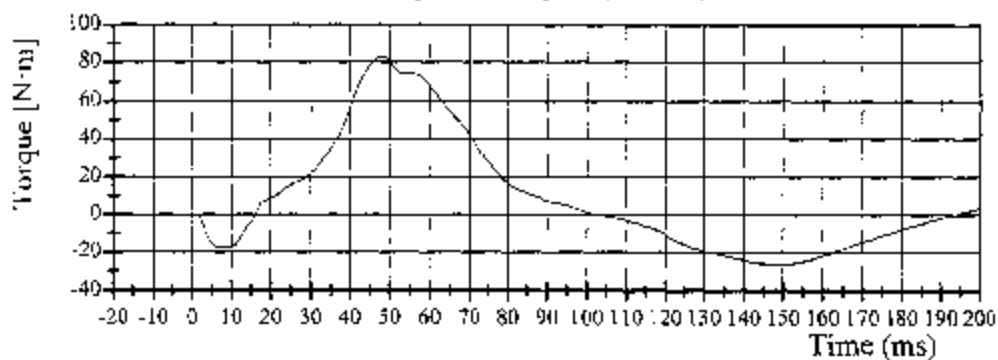


Filter Class: CFC 600

Max: 67.3 N·m at 48.2 ms

Min: -21.2 N·m at 9.9 ms

Moment About the Occipital Condyles (X-Axis)



Filter Class: 600

Max: 83.4 ° at 48.2 ms

Min: -26.3 ° at 148.4 ms

10.07.2003 07:28:57 500





# Transportation Research Center Inc.

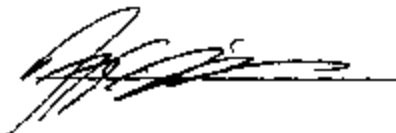
572F Thorax Test

SID HIII Serial No. 055 Calibration No. 09 - 1

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	21.7 C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Pendulum Velocity	4.21 - 4.33 m/sec	4.31 m/sec	Yes
Upper Rib Bar Peak Acceleration	37 - 46 g	38.3 g	Yes
Lower Rib Bar Peak Acceleration	37 - 46 g	37.2 g	Yes
Lower Thoracic Spine (T12) Peak Acceleration	15 - 22 g	17.0 g	Yes

## Comments:

Technician



Approved



10.07.2003 07:34:05 1147

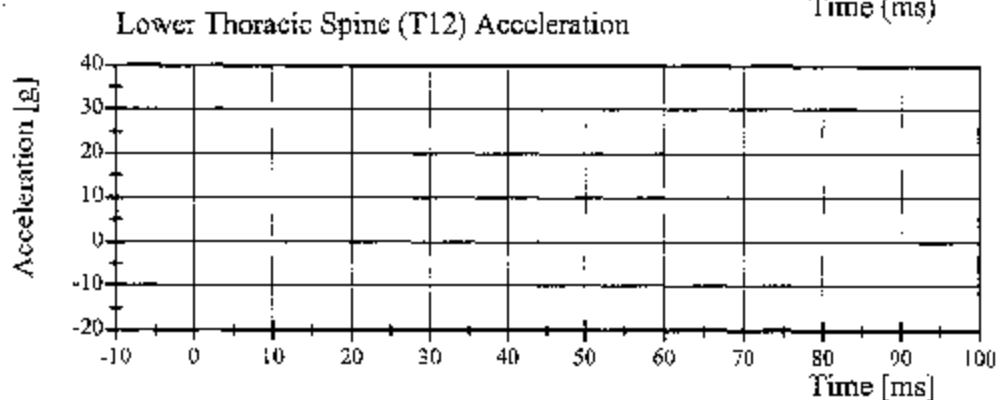
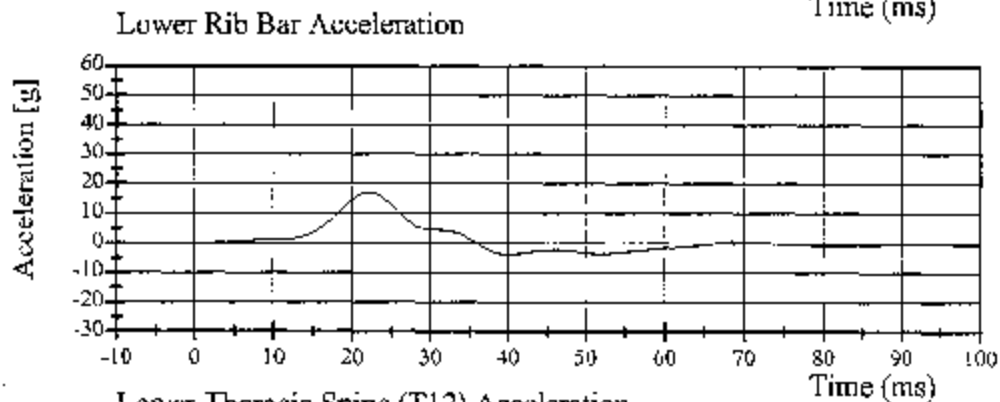
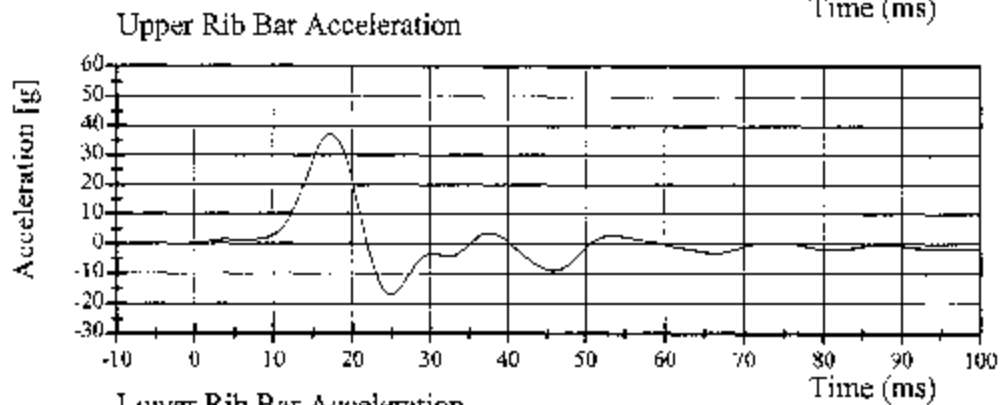
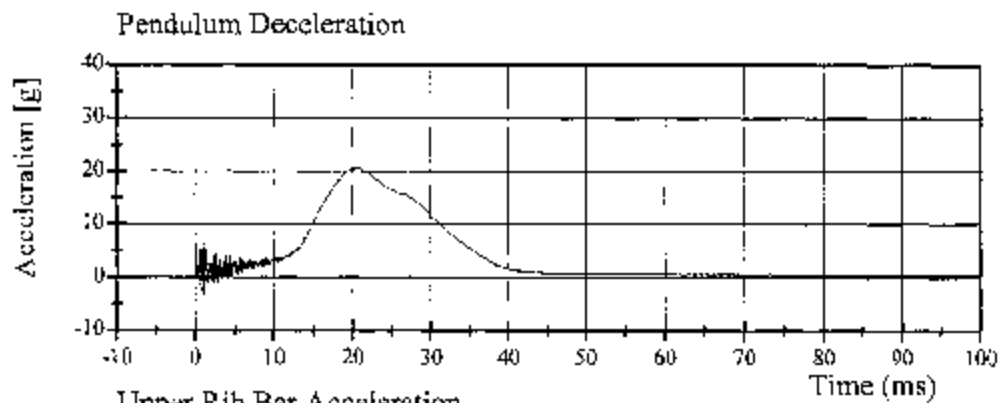


# Transportation Research Center Inc.

572F Thorax Test

SID HIII Serial No. 055 Calibration No. 09 - 1

Test Date 10/06/2003



10.07.2003 07:34:06 1147



# Transportation Research Center Inc.

572B Abdomen Compression Test

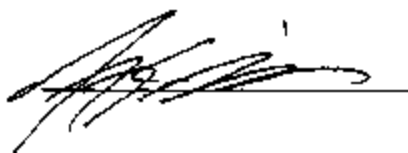
SID HIII Serial No. 055 Calibration No. 09 - I

Test Date 10/07/2003

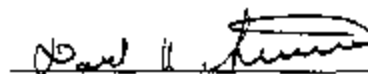
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	30 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	6.8 - 7.9 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

## Comments:

Technician



Approved



10.07.2003 07:48:49 §

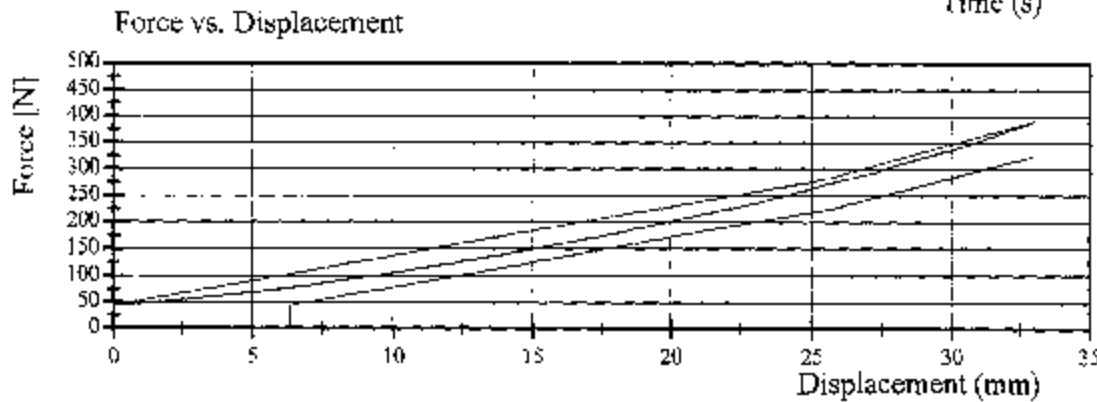
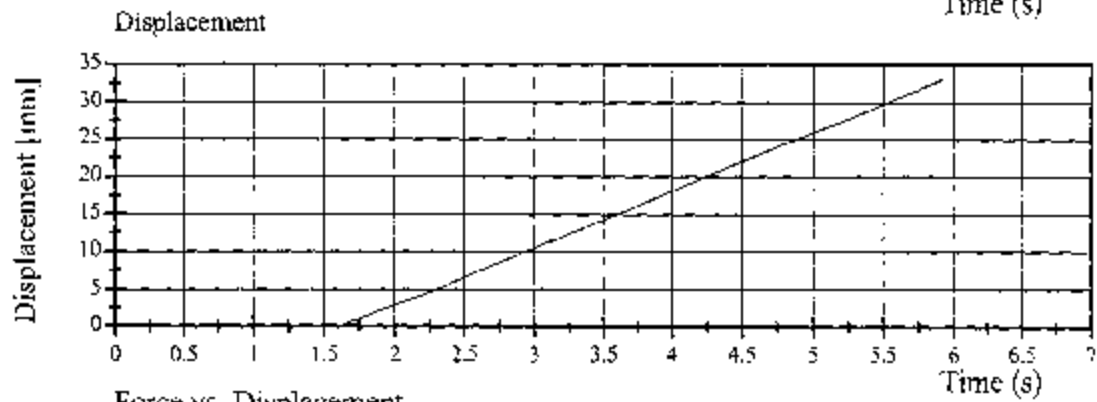
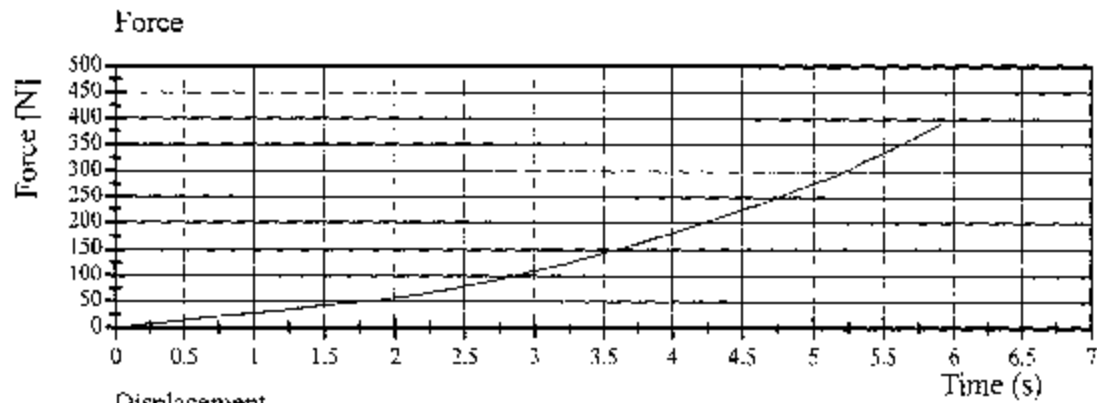


# Transportation Research Center Inc.

572B Abdomen Compression Test

SID HIII Serial No. 055 Calibration No. 09 - 1

Test Date 10/07/2003



10.07.2003 07:48:50 8



TRANSPORTATION RESEARCH CENTER INC.

PART 572B LUMBAR FLEXION TEST

SID HIII

CAL DATE: 07-Oct-03

TRC, INC. TEST NO: LF05509 SID/HIII SN 055 TORSO FLEX CAL 09

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6° C	21.1 °C
RELATIVE HUMIDITY	10 - 70 %	30 %
FORCE AT 0 DEG. FLEXION	-27 - 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 - 151 N	133.4 N
FORCE AT 30 DEG OF FLEXION	151 - 205 N	164.6 N
FORCE AT 40 DEG OF FLEXION	205 - 258 N	200.2 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 °	5°

TEST MEETS SPECIFICATIONS

TECHNICIAN 

# Transportation Research Center Inc.

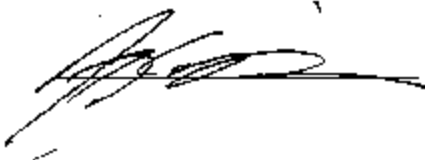
572F Pelvis Test

SID HIII Serial No. 055 Calibration No. 09 - 1

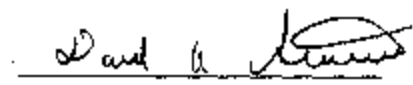
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	21.1 C	Yes
Relative Humidity	10 - 70 %	22 %	Yes
Pendulum Velocity	4.21 - 4.33 m/sec	4.31 m/sec	Yes
Pelvis Peak Acceleration	40 - 60 g	44.6 g	Yes
Time Above 20 g	3 - 7 ms	6.00 ms	Yes
Unimodal requirement for pelvis acceleration	Yes	Yes	Yes

## Comments:

Technician



Approved



10.07.2003 07:33:05 1152



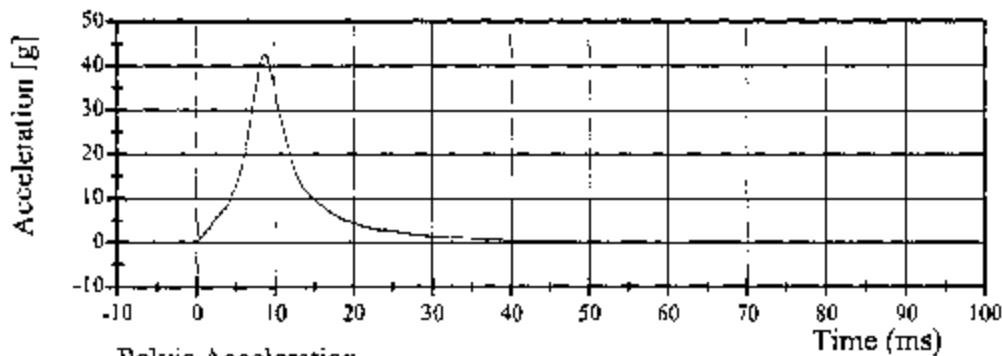
# Transportation Research Center Inc.

572F Pelvis Test

SID H111 Serial No. 055 Calibration No. 09 - 1

Test Date 10/06/2003

Pendulum Deceleration

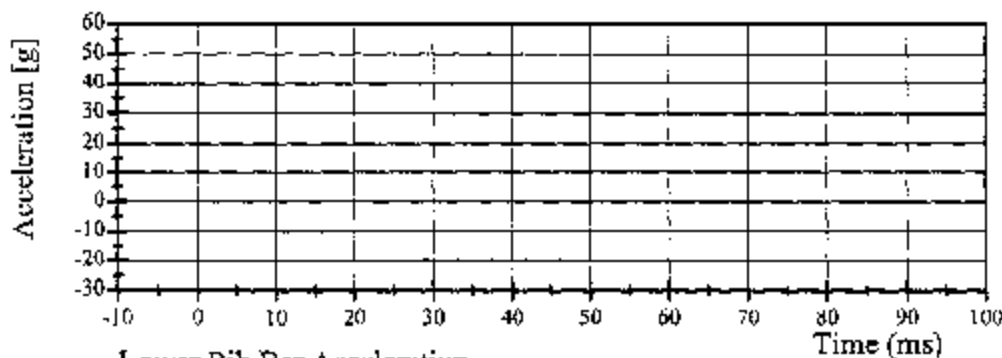


Filter Class: 1000

Max: 42.7 g at 8.6 ms

Min: -0.1 g at -92.0 ms

Pelvis Acceleration



Filter Class: FIR 100

Max: 44.6 g at 8.6 ms

Min: -9.7 g at 21.7 ms

Lower Rib Bar Acceleration

10.07.2003 07:33:06 1152



Calibration Test Results

Post-Test

SID III: 906

Configured for Left Side Impact

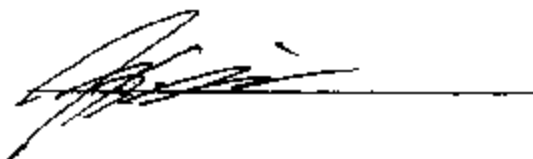
External Dimensions:	The dummy passed all external dimension requirements.
Lateral Head Drop Test:	The head passed all lateral drop test requirements.
Lateral Neck Test:	The neck passed all impact test requirements.
Lateral Thorax Impact Test:	The thorax passed all impact test requirements.
Thoracic Shock Absorber Test:	The thoracic shock absorber was not tested at this time.
Lumbar Flexion Test:	The dummy met the lumbar flexion test requirements.
Abdominal Compression Test:	The abdomen met the compression test requirements.
Pelvis Impact Test:	The lateral pelvis passed all impact test requirements.



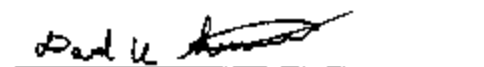
**Transportation Research Center Inc.**  
**SID/HIII Dummy**  
**External Dimensions**  
**Serial No. 906 Calibration No. 03**

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	904 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	506 mm	Yes
Hip Pivot Height	HP	99.1 REF mm	99.1 mm	
Rib From Backline	RD	228.6 - 241.3 mm	229 mm	Yes
Knee Pivot From Backline	KH	510.5 - 525.8 mm	525 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	491 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	384 mm	Yes
Top Rib Width From CVL	RW-1	165.1 - 180.3 mm	178 mm	Yes
Bottom Rib Width From CVL	RW-2	165.1 - 180.3 mm	177 mm	Yes
Difference Between Top & Bottom Rib Width from CVL		$\leq$ 2.5 mm	1.0 mm	Yes

Technician



Approved



**TRC**

# Transportation Research Center Inc.

572M Left Left Lateral Head Test

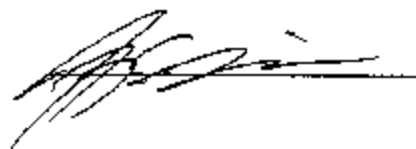
SID HIII Serial No. 906 Calibration No. 03 - 1

Test Date 10/07/2003

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	30 %	Yes
Peak Resultant Acceleration	115 - 150 g	137.2 g	Yes
Peak Longitudinal Acceleration	15 g Max	13.3 g	Yes
Is Acceleration Curve Unimodal?	Yes	Yes	Yes

## Comments:

Technician



Approved



10.07.2003 06:19:30 604

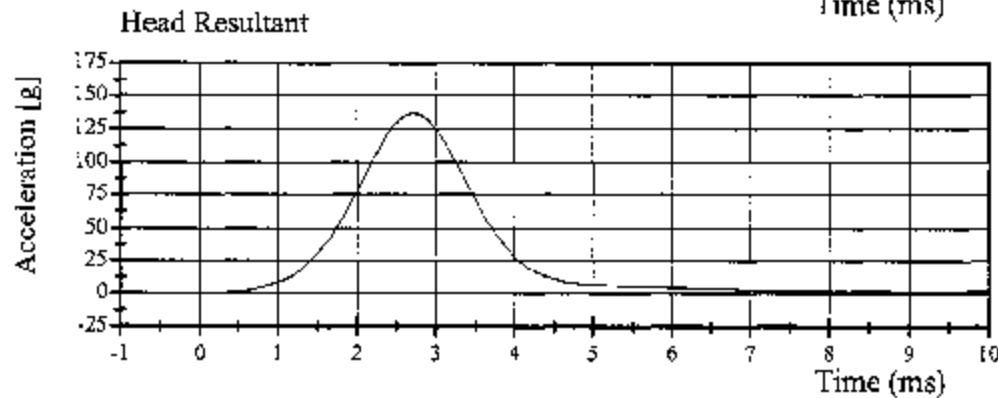
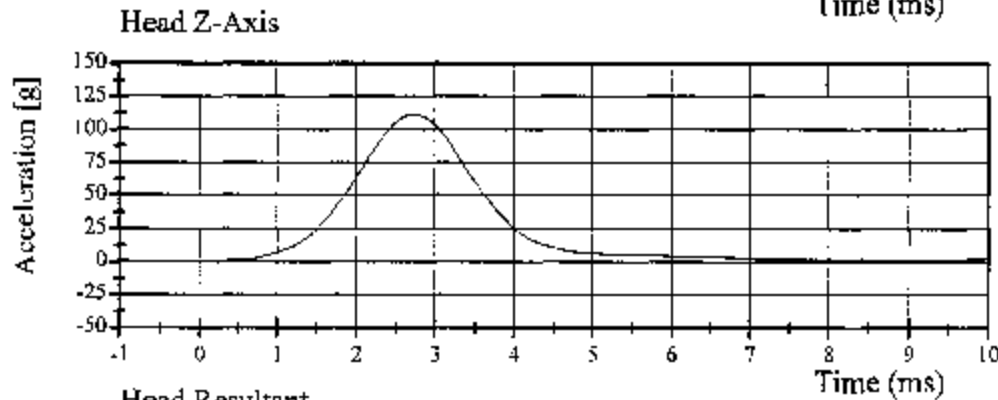
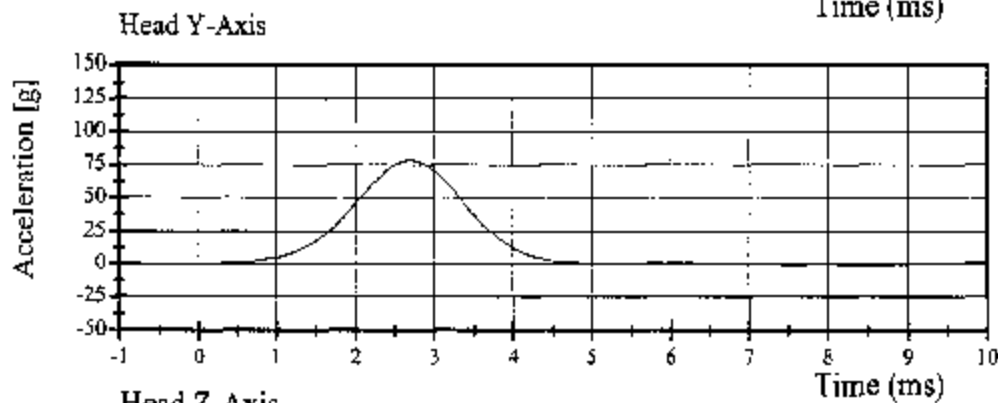
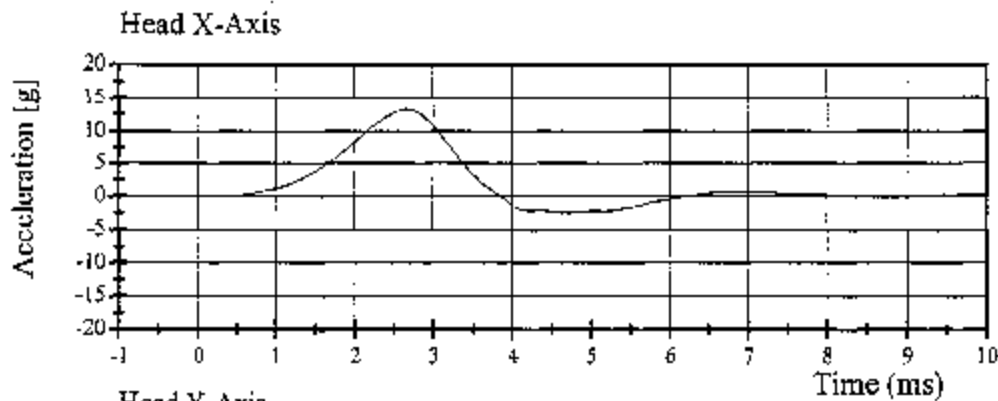


# Transportation Research Center Inc.

572M Left Left Lateral Head Test

SID HIII Serial No. 906 Calibration No. 03 - 1

Test Date 10/07/2003



10.07.2003 06:19:31 604



# Transportation Research Center Inc.

572M Left Lateral Neck Test Test

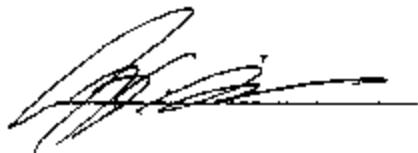
SID HIII Serial No. 906 Calibration No. 03 - 1

Test Date 10/07/2003

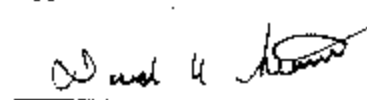
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	30 %	Yes
Impact Velocity	6.89 - 7.13 m/s	7.06 m/s	Yes
Integrated Pendulum Velocity			
10 ms	1.96 - 2.55 m/s	2.10 m/s	Yes
20 ms	4.12 - 5.10 m/s	4.56 m/s	Yes
30 ms	5.73 - 7.64 m/s	6.56 m/s	Yes
40 - 70 ms	6.27 - 7.64 m/s	7.11 - 7.23 m/s	Yes
Peak D Plane Rotation	66 - 82 °	68.9 °	Yes
Rotation Decay Time To 0° From Peak Angle	58 - 67 °	61.6 °	Yes
Peak Moment About Occipital Condyles	73.0 - 88.0 N·m	75.61 N·m	Yes
Moment Decay Time To 0 N·m From Peak Moment	49 - 64 ms	56.32 ms	Yes
Time Between Peak Rotation and Peak Moment	2 - 16 ms	10.56 ms	Yes

## Comments:

Technician



Approved



10.07.2003 06:45:43 483



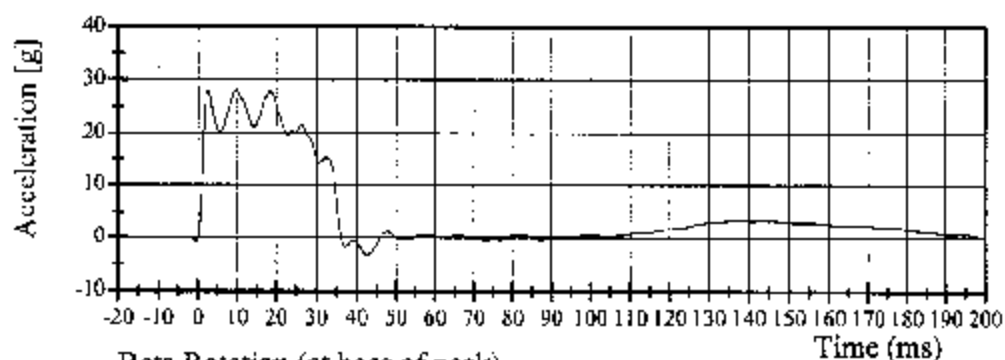
# Transportation Research Center Inc.

572M Left Left Lateral Neck Test Test

SID HIII Serial No. 906 Calibration No. 03 - 1

Test Date 10/07/2003

Pendulum Deceleration

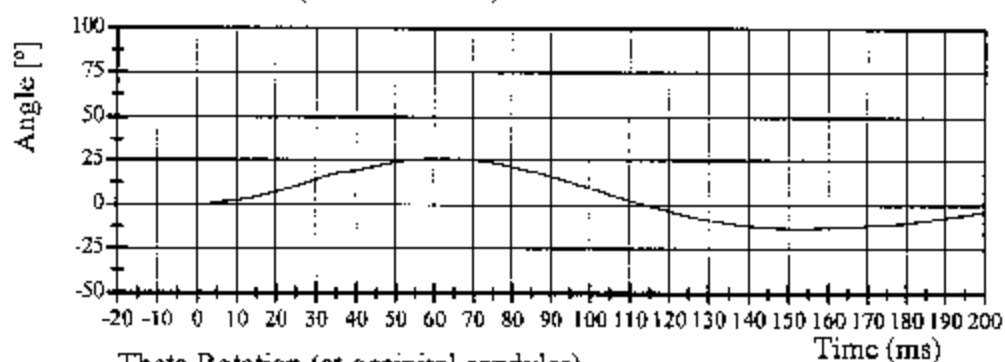


Filter Class: 180

Max: 28.1 g at 9.8 ms

Min: -3.3 g at 42.7 ms

Beta Rotation (at base of neck)

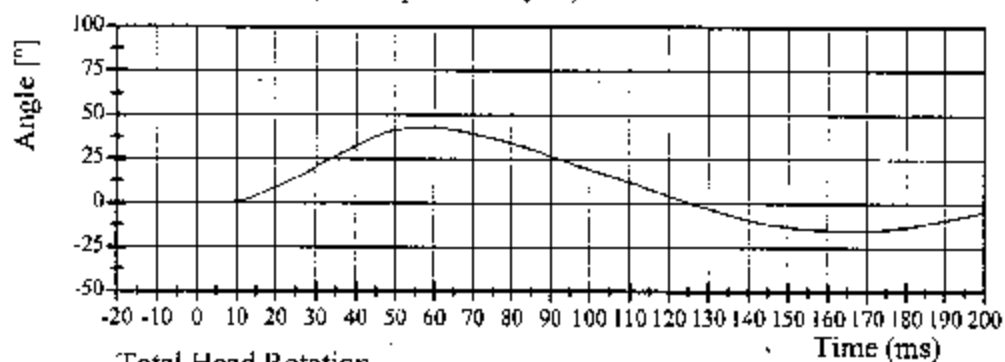


Filter Class: 60

Max: 25.7 ° at 64.6 ms

Min: -13.3 ° at 152.8 ms

Theta Rotation (at occipital condyles)

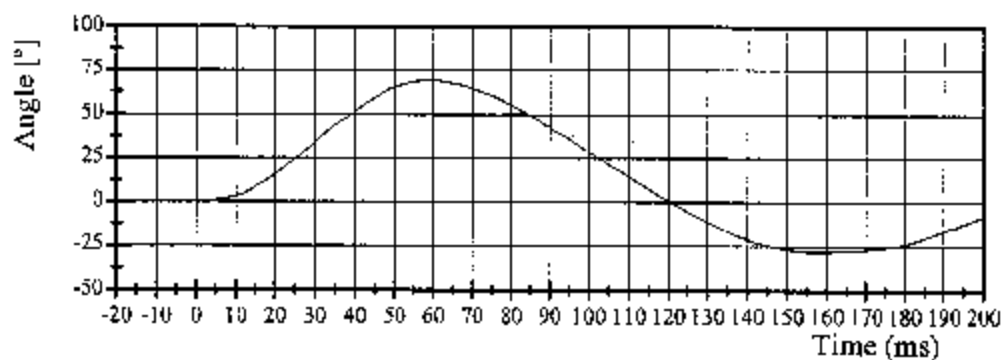


Filter Class: 60

Max: 43.2 ° at 58.2 ms

Min: -15.3 ° at 163.0 ms

Total Head Rotation



Filter Class: 60

Max: 68.9 ° at 59.1 ms

Min: -28.1 ° at 157.3 ms

10.07.2003 06:45:43 483



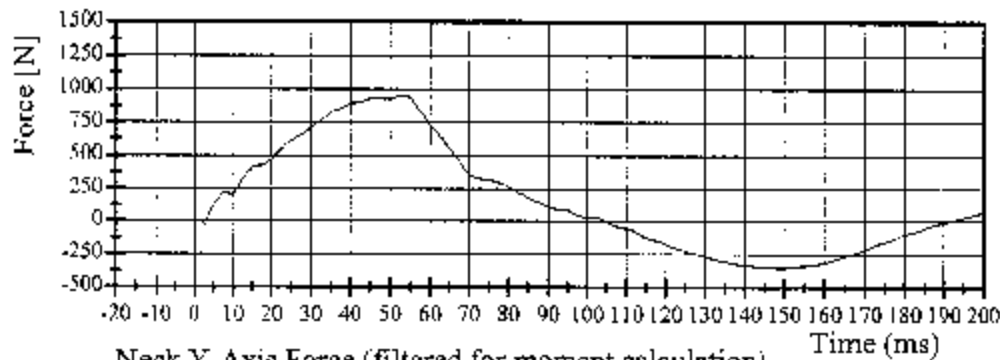
# Transportation Research Center Inc.

572M Left Left Lateral Neck Test

SID HIII Serial No. 906 Calibration No. 03 - 1

Test Date 10/07/2003

Neck Y-Axis Force

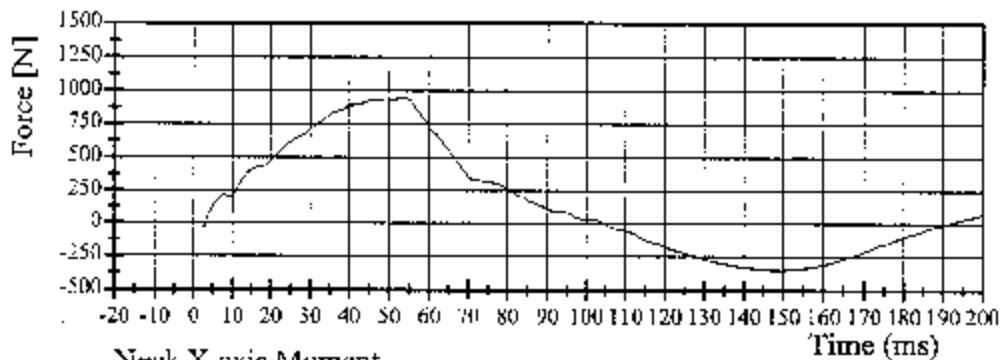


Filter Class: CFC 1000

Max: 950.3 N at 53.2 ms

Min: -350.8 N at 149.6 ms

Neck Y-Axis Force (filtered for moment calculation)

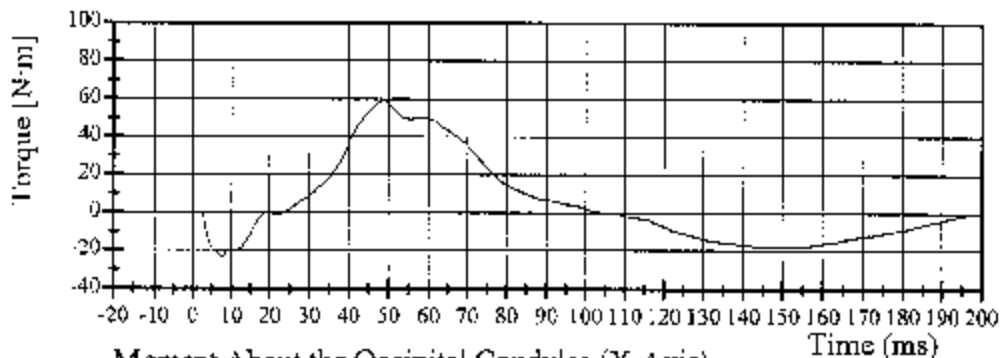


Filter Class: CFC 600

Max: 949.6 N at 53.4 ms

Min: -350.3 N at 148.5 ms

Neck X-axis Moment

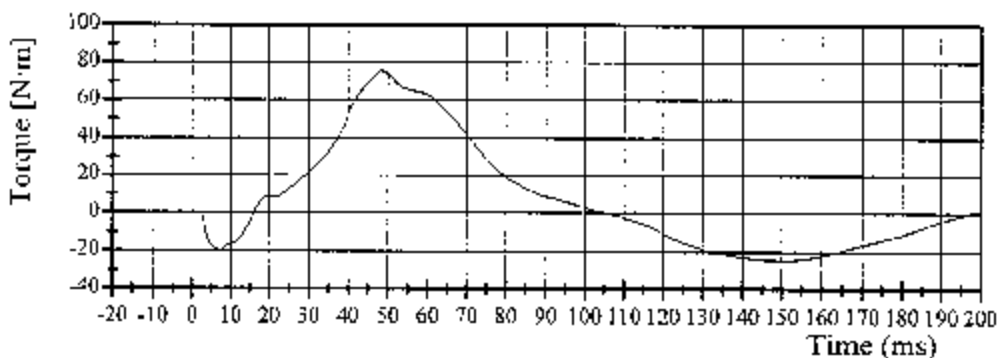


Filter Class: CFC 600

Max: 59.2 N·m at 48.5 ms

Min: -23.8 N·m at 7.6 ms

Moment About the Occipital Condyles (X-Axis)



Filter Class: 600

Max: 75.6° at 48.6 ms

Min: -24.4° at 150.9 ms

10.07.2003 06:45:45 483



# Transportation Research Center Inc.

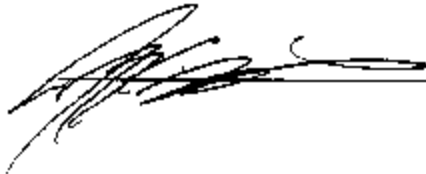
572F Left Side Thorax Test

SID IIII Serial No. 906 Calibration No. 03 - 1

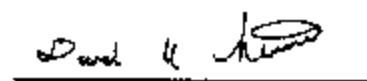
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	21.1 C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Pendulum Velocity	4.21 - 4.33 m/sec	4.32 m/sec	Yes
Upper Rib Bar Peak Acceleration	37 - 46 g	42.6 g	Yes
Lower Rib Bar Peak Acceleration	37 - 46 g	43.3 g	Yes
Lower Thoracic Spine (T12) Peak Acceleration	15 - 22 g	19.7 g	Yes

## Comments:

Technician



Approved



10.07.2003 08:33:19 1143



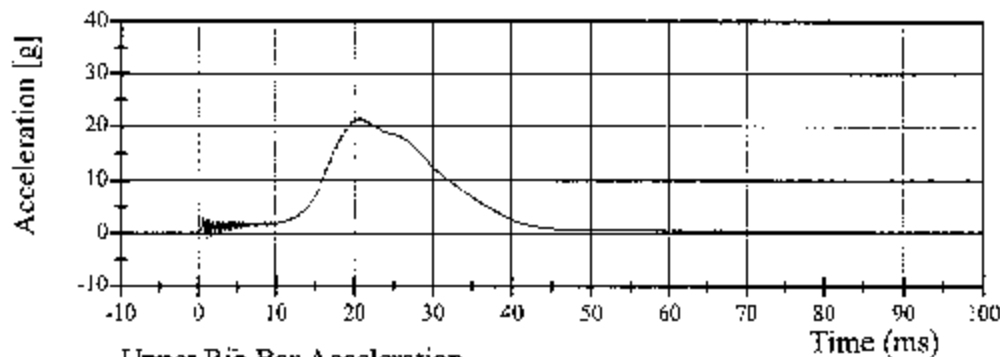
# Transportation Research Center Inc.

572F Left Side Thorax Test

SID HIII Serial No. 906 Calibration No. 03 - 1

Test Date 10/07/2003

Pendulum Deceleration

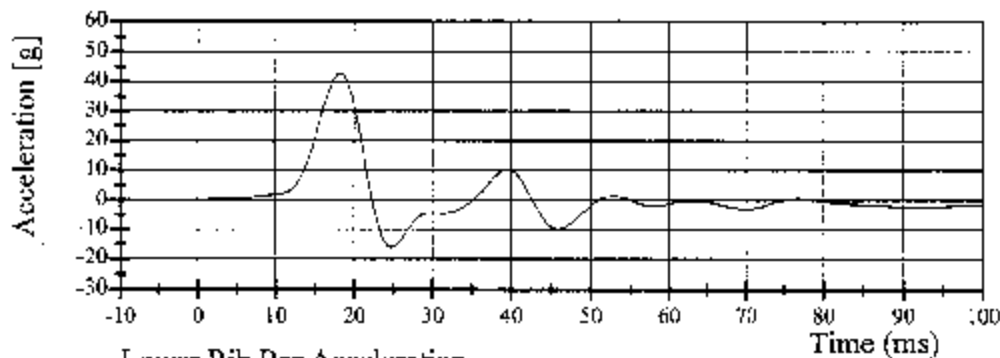


Filter Class: 1000

Max: 21.5 g at 20.6 ms

Min: -1.1 g at 1.3 ms

Upper Rib Bar Acceleration

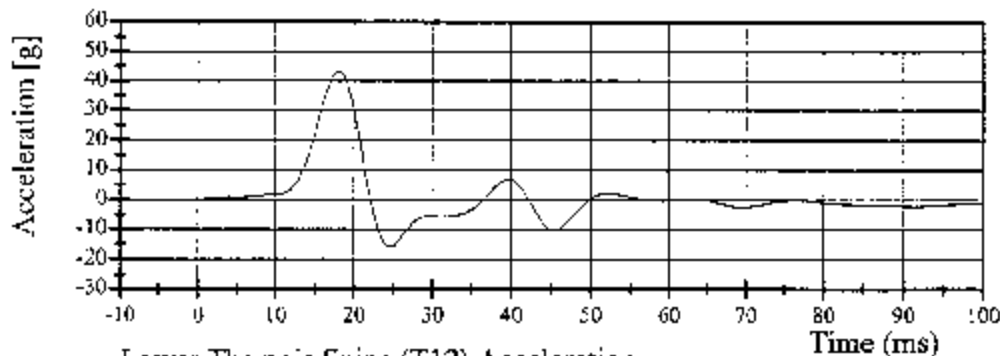


Filter Class: FIR 100

Max: 42.6 g at 18.1 ms

Min: -16.3 g at 24.9 ms

Lower Rib Bar Acceleration

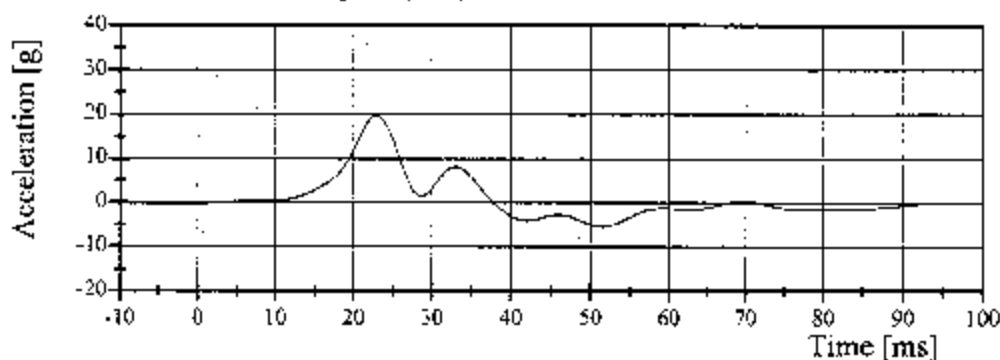


Filter Class: FIR 100

Max: 43.3 g at 18.0 ms

Min: -15.8 g at 24.9 ms

Lower Thoracic Spine (T12) Acceleration



Filter Class: FIR 100

Max: 19.7 g at 23.0 ms

Min: -5.4 g at 51.2 ms

10.07.2003 08:33:20 1143





# Transportation Research Center Inc.

572B Abdomen Compression Test

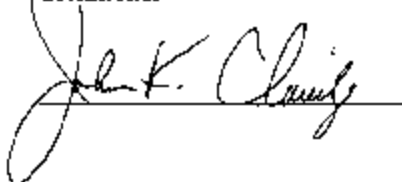
SID HIII Serial No. 906 Calibration No. 03 - 1

Test Date 10/06/2003

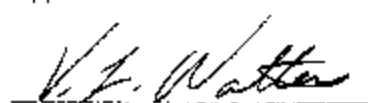
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	30 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	7.2 - 8.0 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Comments:

Technician



Approved



10.06.2003 15:38:47 119

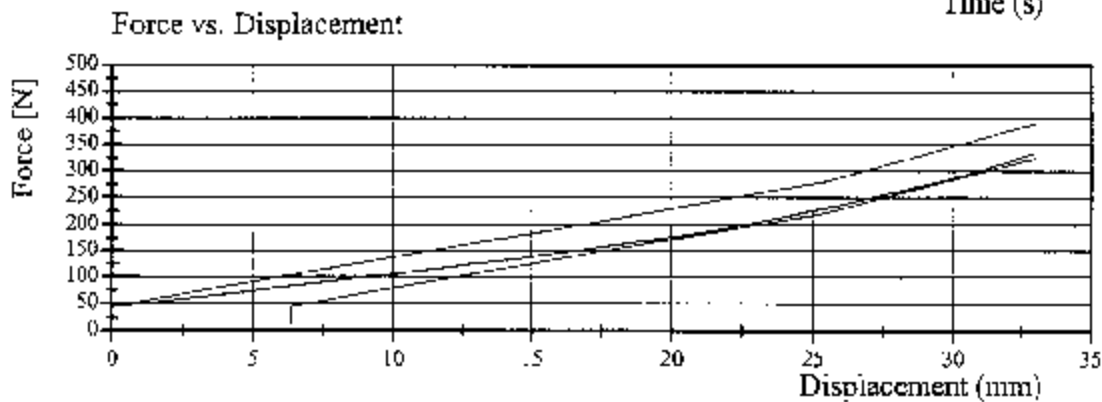
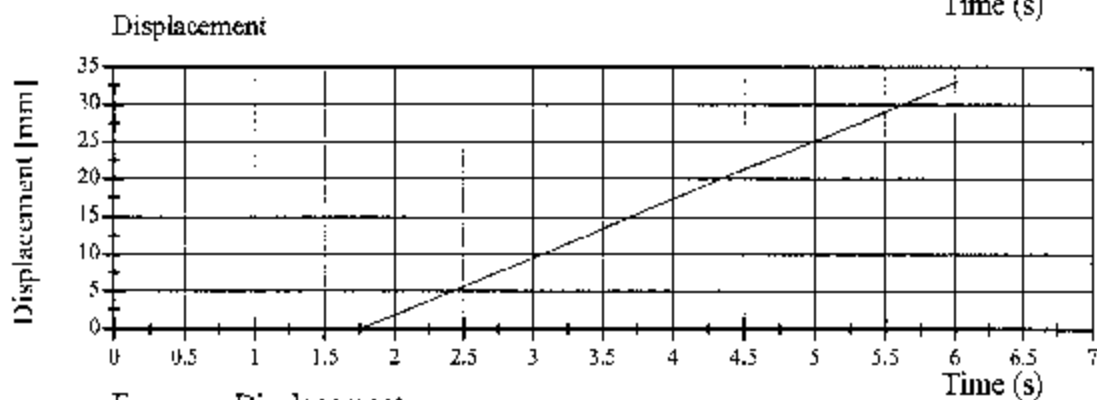
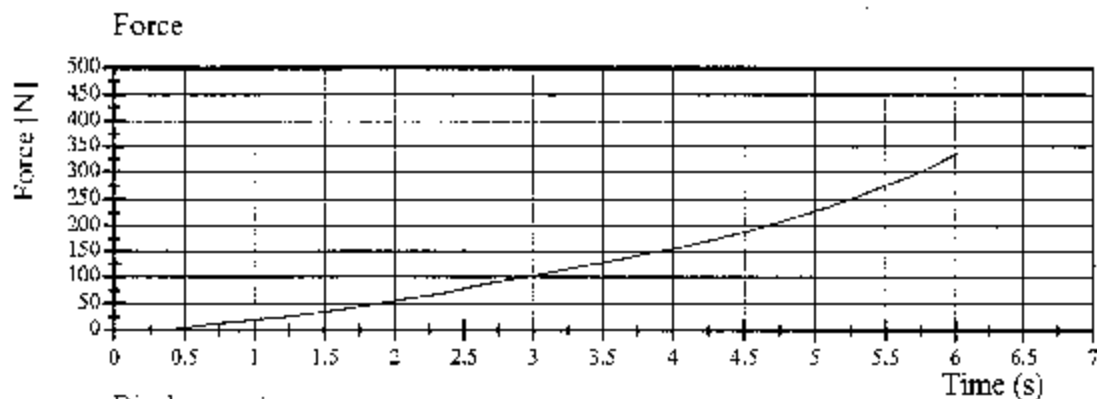


# Transportation Research Center Inc.

572B Abdomen Compression Test

SID HIII Serial No. 906 Calibration No. 03 - 1

Test Date 10/06/2003



TRANSPORTATION RESEARCH CENTER INC.

PART 572B LUMBAR FLEXION TEST

SID HIII

CAL DATE: 07-Oct-03

TRC, INC. TEST NO: 906C03TF1 SID/HIII SN 906 TORSO FLEX CAL 03

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6° C	21.1 °C
RELATIVE HUMIDITY	10 - 70 %	31 %
FORCE AT 0 DEG. FLEXION	-27 - 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 - 151 N	137.8 N
FORCE AT 30 DEG OF FLEXION	151 - 205 N	173.5 N
FORCE AT 40 DEG OF FLEXION	205 - 258 N	240.2 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 °	7 °

TEST MEETS SPECIFICATIONS

TECHNICIAN 

# Transportation Research Center Inc.

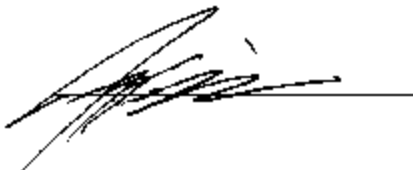
572F Left Side Pelvis Test

SID H111 Serial No. 906 Calibration No. 03 - 1

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	21.1 C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Pendulum Velocity	4.21 - 4.33 m/sec	4.31 m/sec	Yes
Pelvis Peak Acceleration	40 - 60 g	45.8 g	Yes
Time Above 20 g	3 - 7 ms	5.92 ms	Yes
Unimodal requirement for pelvis acceleration	Yes	Yes	Yes

## Comments:

Technician



Approved



10.07.2003 08:39:37 1168



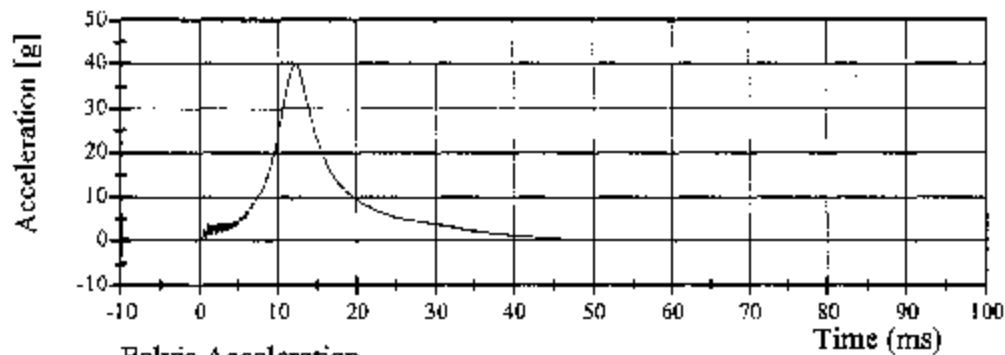
# Transportation Research Center Inc.

572F Left Side Pelvis Test

SID HIII Serial No. 906 Calibration No. 03 - 1

Test Date 10/07/2003

Pendulum Deceleration

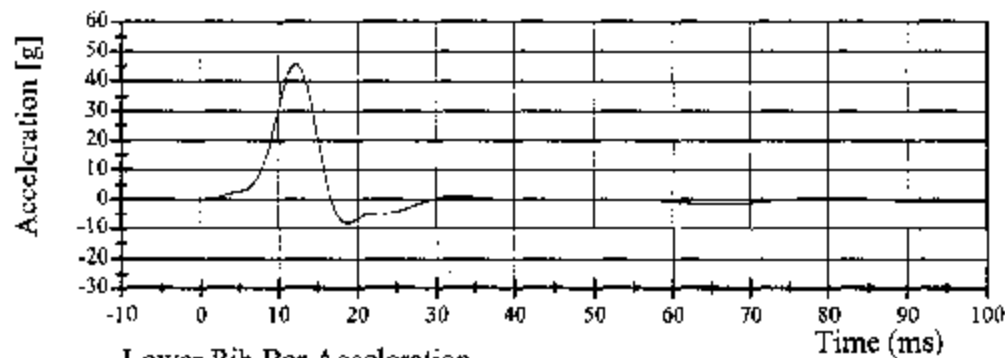


Filter Class: 1000

Max: 40.1 g at 12.3 ms

Min: -0.1 g at -90.9 ms

Pelvis Acceleration



Filter Class: FIR 100

Max: 45.8 g at 12.2 ms

Min: -8.2 g at 18.6 ms

Lower Rib Bar Acceleration

10.07.2003 08:30:38 1168



Type: SID HIII S/N: 055 Mfr: ASTC Test Date: 09/24/03Proj./Seg. No.: 20020455-2010 Test Eng.: Walt Dudek

ITEM	PRE-USE	
<b>HEAD:</b>		
Head Ballast Condition	X	
Accel. Mount Bolts and Cables	X	
Skull Cap Bolts	X	
Head Skin Condition	X	
Accel. Cable Exit (left or right)	(Left)	(Right) N/A
<b>NECK:</b>		
Rubber Condition and Separation From Ead Caps	X	
<b>THORAX:</b> Left side configuration		
Stacked Shoulder Foams and Bolts	X	
* Rib Cage Spring and Support Assembly	X	
* Rib Cage Bolts	X	
* Damper Rear Attachment Ring, Pivots, Pins, and Bracket	X	
* Location and Adjustment of Chest Pot Bracket and Collars	X	
* Chest Pot Rod End Nuts and Eyebolt	X	
Arm Foam Orientation	X	
Thorax/Lumbar Spine Bolts	X	
<b>PELVIS:</b>		
Tightness and Alignment of H-Point Tool Insert	X	
* Hips Range of Motion and 1-2g Adjustment (before calibration only)	X	
Upper Femur Bolt Adjustment and Position	X	
Check Spine Kits (Yellow tape = Kits/No tape = No kits)	(With) X	(Without)
<b>LEGS AND FEET:</b>		
Femur Load Cell Bolts (30 lb/lbs)	X	
Breakaway Femur Bolts	X	
Knee Joint Function and Range of Motion	X	
Leg Skin Condition and Position	X	
Ankle Range of Motion	X	
Foot Condition	X	
<b>OTHER:</b>		
Cleanliness	X	
Target Position	X	
Clothes	X	
Shoes	X	
Knee & Ankle One G Joint Adjustments	X	

Inspection Completed By: J. Clarridge Date: 09/23/03

Type: SID HIII S/N: 906 Mfr: Unknown Test Date: 09/24/03Proj./Seg. No.: 20020455-2010 Test Eng.: Walt Dudek

ITEM	PRE-USE	
<b>HEAD:</b>		
Head Ballast Condition	X	
Accel. Mount Bolts and Cables	X	
Skull Cap Bolts	X	
Head Skin Condition	X	
Accel. Cable Exit (left or right)	(Left)	(Right) N/A
<b>NECK:</b>		
Rubber Condition and Separation From End Caps	X	
<b>THORAX: Left side configuration</b>		
Stacked Shoulder Foams and Bolts	X	
* Rib Cage Spring and Support Assembly	X	
* Rib Cage Bolts	X	
* Damper Rear Attachment Ring, Pivot Pins, and Bracket	X	
* Location and Adjustment of Chest Pot Bracket and Collars	X	
* Chest Pot Rod End Nuts and Eyebolt	X	
Arm Foam Orientation	X	
Thorax/Lumbar Spine Bolts	X	
<b>PELVIS:</b>		
Tightness and Alignment of H-Point Tool Insert	X	
* Hips Range of Motion and 1-2g Adjustment (before calibration only)	X	
Upper Femur Bolt Adjustment and Position	X	
Check Spine Kits (Yellow tape = Kits/No tape = No kits)	(With) X	(Without)
<b>LEGS AND FEET:</b>		
Femur Load Cell Bolts (30 #/lbs)	X	
Breakaway Femur Bolts	X	
Knee Joint Function and Range of Motion	X	
Leg Skin Condition and Position	X	
Ankle Range of Motion	X	
Foot Condition	X	
<b>OTHER:</b>		
Cleanliness	X	
Target Position	X	
Clothes	X	
Shoes	X	
Knee & Ankle One G Joint Adjustments	X	

Inspection Completed By: J. Clarridge Date: 09/23/03

Transportation Research Center Inc.

SID HIII Post-Use Inspection

Type: SID HIII S/N: 055 Mfr: ASTC Test Date: 09/24/03

Proj./Seg. No.: 20020455-2010 Test Eng.: Walt Dudek

ITEM	POST-USE
<b>HEAD:</b>	
Head Skin Condition	X
Head Ballast Condition	X
<b>NECK:</b>	
Rubber Condition and Separation From End Caps	X
<b>THORAX: Left side configuration</b>	
Jacket Condition	X
Arm Foam Condition	X
Damper and Chest Pot Movement and Condition	X
Rib Cage Spring and Support Assembly Condition	X
Rib Wrap Condition	X
Abdomen condition	X
Thorax/Lumbar Spine Bolts	X
Lumbar Spine Condition and Separation From End Caps	X
<b>PELVIS:</b>	
Iliac Crest bone	X
Flesh Condition	X
Hip Range of Motion	X
<b>LEGS AND FEET:</b>	
Knee Skins and Castings Condition	X
Leg Skin Condition	X
Foot Condition	X
Knee Joint Range of Motion	X
Ankle Range of Motion	X

NOTES: No damage to report.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Inspection Completed By: J. Clarridge

Date: 10/02/03



Transportation Research Center Inc.

SID HIII Post-Use Inspection

Type: SID HIII S/N: 906 Mfr: Unknown Test Date: 09/24/03

Proj./Seg. No.: 20020455-2010 Test Eng.: Walt Dudek

ITEM	POST-USE
<b>HEAD:</b>	
Head Skin Condition	X
Head Ballast Condition	X
<b>NECK:</b>	
Rubber Condition and Separation From End Caps	X
<b>THORAX: Left side configuration</b>	
Jacket Condition	X
Arm Foam Condition	X
Damper and Chest Pot Movement and Condition	X
Rib Cage Spring and Support Assembly Condition	X
Rib Wrap Condition	X
Abdomen condition	X
Thorax/Lumbar Spine Bolts	X
Lumbar Spine Condition and Separation From End Caps	X
<b>PELVIS:</b>	
Iliac Crest bone	X
Flesh Condition	X
Hip Range of Motion	X
<b>LEGS AND FEET:</b>	
Knee Skins and Castings Condition	X
Leg Skin Condition	X
Foot Condition	X
Knee Joint Range of Motion	X
Ankle Range of Motion	X

NOTES: No damage to report.

Inspection Completed By: J. Clarridge

Date: 10/02/03

## Appendix D

### Test Equipment List and Calibration Information

Sign Convention  
SAE J211 MAR95

Accelerometers:

- +X: Forward
- +Y: Rightward
- +Z: Downward

Potentiometers:

- +Chest longitudinal deflection: Outward
- +Chest lateral deflection: Rightward
- +Seat belt displacement: Outward
- +Seat belt extension: Elongation
- +Knee slider displacement: Distance between femur and tibia increased (in relation to a seated dummy)

Rotation potentiometers:

- +About the X-axis: Left foot-eversion  
Right foot-inversion
- +About the Y-axis: Left/right foot-dorsiflexion
- +About the Z-axis: Left foot-internal  
Right foot-external

Load cells:

- +Femur force: Tension
- +Seat belt force: Tension
- +Barrier force: Tension

Neck load cells:

- +X force: Head pushed rearward
- Y force: Head pushed leftward
- +Z force: Head pulled upward (tension on neck)
- X moment: Left ear rotating toward left shoulder
- +Y moment: Chin rotating toward chest
- +Z moment: Chin rotating toward left shoulder

Tibia load cells:

- +X force: Ankle forward, knee rearward
- +Y force: Ankle rightward, knee leftward
- +Z force: Tension
- +X moment: Bottom of tibia moving leftward
- +Y moment: Bottom of tibia moving rearward

Sign Convention, Cont'd.  
SAE J211 MAR95

Lumbar load cells:

+X force:	Chest rearward, pelvis forward
+Y force:	Chest leftward, pelvis rightward
+Z force:	Chest upward, pelvis downward
+X moment:	Left shoulder toward left hip
+Y moment:	Sternum toward front of legs
+Z moment:	Right shoulder forward, left shoulder rearward

Frequency Response Classes  
SAE J211 MAR95

<u>Typical Test Measurements</u>	<u>Channel Class</u>
Vehicle Structural Accelerations for use in:	
Total vehicle comparison	60
Collision simulation input	60
Component analysis	600
Integration for velocity or displacement	180
Barrier Face Forces	60
Belt Restraint System Loads	60
Anthropomorphic Test Device	
Head accelerations (linear and angular)	1000
Neck	
Forces	1000
Moments	600
Thorax	
Spine accelerations	180
Rib accelerations	1000
Sternum accelerations	1000
Deflections	600
Lumbar	
Forces	1000
Moments	1000
Pelvis	
Accelerations	1000
Forces	1000
Moments	1000
Femur/Knee/Tibia/Ankle	
Forces	600
Moments	600
Displacements	180
Sled Accelerations	60
Steering Column Loads	600
Head Form Accelerations	1000

The direction column on the following sheets describes the transducer output as mounted and wired in the test location. The polarity column indicates whether a polarity change occurred during data acquisition to conform to J211 MAR95. See Report Sign Convention sheet for description of data output as presented in the report; occasionally channels have been adjusted in post-acquisition processing to conform to J211 MAR95.

# Channel Report

9/24/2003 7:58:42 AM

Name of Test 030924-1

System

MINIDAU

Name of DAU DAU16

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol. Cal.	Group	Mfg.	Model
6001	P23298	HEDXG1	Head Accel X	Rwd	801.41499	-	OK	Endevco	7264C-2K-2-180
6002	P23061	IEDYGI	Head Accel Y	Lft	807.76208	-	OK	Endevco	7264C-2K-2-180
6003	P23261	HEDZG1	Head Accel Z	Up	803.12465	-	OK	Endevco	7264C-2K-2-180
6004	P23067	IEDXR1	Head Accel X Red	Rwd	803.43972	-	OK	Endevco	7264C-2K-2-180
6005	P24511	HEDYR1	Head Accel Y Red	Lt	789.83092	-	OK	Endevco	7264C-2K-2-180
6006	P23063	HEDZR1	Head Accel Z Red	Up	806.42620	-	OK	Endevco	7264C-2K-2-180
6007	1716-0534-FX	NEKXF1	Neck Force X	Hd	8890.8019	N	OK	Denton	1716
6008	1716-0534-FY	NEKYF1	Neck Force Y	Hd	8885.0977	N	OK	Denton	1716
6009	1716-0534-FZ	NEKZF1	Neck Force Z	Hd	13357.627	N	OK	Denton	1716
6010	1716-0534-MX	NEKXM1	Neck Moment X	Rt Ear	282.37048	N-m	OK	Denton	1716
6011	1716-0534-MY	NEKYM1	Neck Moment Y	Chn	282.42609	N-m	OK	Denton	1716
6012	1716-0534-MZ	NEKZM1	Neck Moment Z	Chn	282.48456	N-m	OK	Denton	1716
6013	P23068	LURYG1	Left Upper Rib Y	Rgt	794.82124	g	OK	Endevco	7264C-2K-2-180
6014	P23069	LURYR1	Left Upper Rib Red Y	Rgt	808.28492	g	OK	Endevco	7264C-2K-2-180
6015	P23305	LLRYG1	Left Lower Rib Y	Rgt	802.92314	g	OK	Endevco	7264C-2K-2-180
6016	P23395	LLRYR1	Left Lower Rib Red Y	Rgt	806.45161	g	OK	Endevco	7264C-2K-2-180
6017	P24393	T12YG1	Lower Spine Y	Lt	402.81973	g	OK	Endevco	7264C-2K-2-180
6018	P24627	T12YR1	Lower Spine Red Y	Lt	402.18373	g	OK	Endevco	7264C-2K-2-180
6019	P23397	PEVYG1	Pelvis Accel Y	Lt	398.38157	g	OK	Endevco	7264C-2K-2-180
6020	P25231	PEVYR1	Pelvis Accel Red Y	Lt	399.27631	g	OK	Endevco	7264C-2K-2-180
6021	J26885	HEDXG4	Head Accel X	Rwd	803.17505	g	OK	Endevco	7264C-2K-2-180
6022	J26864	HEDYG4	Head Accel Y	Lt	790.78244	g	OK	Endevco	7264C-2K-2-180
6024	J27950	HEDZG4	Head Accel Z	Up	791.95668	g	OK	Endevco	7264C-2K-2-180
6025	J27271	HEDXR4	Head Accel X Red	Rwd	799.75007	g	OK	Endevco	7264C-2K-2-180
6026	J27283	HEDYR4	Head Accel Y Red	Lt	809.00012	g	OK	Endevco	7264C-2K-2-180
6027	J26980	HEDZR4	Head Accel Z Red	Up	789.53861	g	OK	Endevco	7264C-2K-2-180
6028	1716A-1535-FX	NEKXF4	Neck Force X	Hd	8891.7885	N	OK	Denton	1716A
6029	1716A-1535-FY	NEKYF4	Neck Force Y	Hd	8908.0907	N	OK	Denton	1716A
6030	1716A-1535-FZ	NEKZF4	Neck Force Z	Hd	13330.563	N	OK	Denton	1716A
6031	1716A-1535-MX	NEKXM4	Neck Moment X	Rt Ear	282.72169	N-m	OK	Denton	1716A
6032	1716A-1535-MY	NEKYM4	Neck Moment Y	Chn	282.57318	N-m	OK	Denton	1716A

# Channel Report

9/24/2003 7:58:43 AM

Name of Test 030924-1

System MINIDAU

Name of DAU DAU7

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol. Cal.	Group	Mfg.	Model
7001	1716A-1535-MZ	NEKZM4	Neck Moment Z	Chn	283.00597	-	906n	Denton	1716A
7002	P27850	LURYG4	Left Upper Rib Y	Rgt	792.32435	+	906n	Endevco	7264C-2K-2-180
7003	P25374	LURYR4	Left Upper Rib Red Y	Rgt	799.23822	+	906n	Endevco	7264C-2K-2-180
7004	P29211	LJRYG4	Left Lower Rib Y	Rgt	787.98325	+	906n	Endevco	7264C-2K-2-180
7005	P25075	LLRYR4	Left Lower Rib Red Y	Rgt	797.20976	-	906n	Endevco	7264C-2K-2-180
7006	P21635	T12YG4	Lower Spine Y	Lft	397.33043	-	906n	Endevco	7264C-2K-2-180
7007	P24564	T12YR4	Lower Spine Red Y	Lft	397.12087	-	906n	Endevco	7264C-2K-2-180
7008	P21652	PEVYG4	Pelvis Accel Y	Lft	397.45998	-	906n	Endevco	7264C-2K-2-180
7009	P25318	PEVYR4	Pelvis Accel Red Y	Lft	402.78171	-	906n	Endevco	7264C-2K-2-180
7010	P28241	RFSXG1	RGT SIDE SILL FRNT ST X	FWD	402.43979	+	906n	Endevco	7264C-2K-2-180
7011	P27498	RFSYG1	RGT SIDE SILL FRNT ST Y	Lt	1004.9067	-	906n	Endevco	7264C-2K-2-180
7012	P27200	RTSZG1	RGT SIDE SILL FRNT ST Z	UP	395.61118	-	906n	Endevco	7264C-2K-2-180
7013	P27939	RRSXG1	RGT SIDE SILL RR ST X	FWD	398.80358	+	906n	Endevco	7264C-2K-2-180
7014	P23816	RRSYG1	RGT SIDE SILL RR ST Y	Lt	994.56099	-	906n	Endevco	7264C-2K-2-180
7015	P27913	RRSZG1	RGT SIDE SILL RR ST Z	UP	399.00249	-	906n	Endevco	7264C-2K-2-180
7016	P28265	RDKXG1	RR FLR PAN ABV AXLE X	RR	1012.0177	-	906n	Endevco	7264C-2K-2-180
7017	P28119	RDKYG1	RR FLR PAN ABV AXLE Y	Lt	1023.5496	-	906n	Endevco	7264C-2K-2-180
7018	P28081	RDKZG1	RR FLR PAN ABV AXLE Z	UP	1007.7549	-	906n	Endevco	7264C-2K-2-180
7019	P27173	LRSYG1	LFT SIDE SILL RR ST Y	RT	976.63328	-	906n	Endevco	7264C-2K-2-180
7020	P29287	L1SYG1	LFT SIDE SILL FRNT ST Y	RT	1536.6146	+	906n	Endevco	7264C-2K-2-180
7021	P27167	RRTYG1	RGT RR OCP COMP Y	RT	1447.8000	+	906n	Endevco	7264C-2K-2-180
7022	P22834	LLBYG1	LFT LOWER B-POST Y	RT	1484.9187	+	906n	Endevco	7264C-2K-2-180
7023	P28313	LUBYG1	LFT MID B-POST Y	RT	1528.9058	-	906n	Endevco	7264C-2K-2-180
7024	P28618	L1AYG1	LFT LOWER A-POST Y	Lt	1476.0998	-	906n	Endevco	7264C-2K-2-180
7025	P29285	L1UAYG1	LFT MID A-POST Y	Lt	1512.3320	-	906n	Endevco	7264C-2K-2-180
7026	P27354	LFTYG1	LFT FRNT ST TRK Y	RT	1551.7972	-	906n	Endevco	7264C-2K-2-180
7027	P28272	LRTYG1	LFT RR ST TR Y	RT	1478.7430	+	906n	Endevco	7264C-2K-2-180
7028	P28620	VCGXG1	VEH C/G X	FWD	1000.6253	-	906n	Endevco	7264C-2K-2-180
7029	P28251	VCGYG1	VEH C/G Y	Lt	996.47729	-	906n	Endevco	7264C-2K-2-180
7030	P25042	VCGZG1	VEH C/G Z	UP	1015.2485	-	906n	Endevco	7264C-2K-2-180



# Channel Report

9/24/2003 7:58:43 AM

Name of Test 030924-1

System

MINIDAU

Name of DAU DAU8

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol. Cal.	Group	Mfg.	Model		
8001	P27554	BCGXG1	MDB CG X-AXIS	FWD	810.12658 g	+	7/18/2003	OK	-1	Endevco	7264C-2K-2-180
8002	P28109	BCGYG1	MDB CG Y-AXIS	LT	798.10450 g	-	7/19/2003	OK	-1	Endevco	7264C-2K-2-180
8003	P27976	BCGZG1	MDB CG Z-AXIS	UP	790.24540 g	-	7/18/2003	OK	-1	Endevco	7264C-2K-2-180
8004	P27385	LRRXG1	MDB LT RR X-AXIS	FWD	799.11348 g	+	7/19/2003	OK	-1	Endevco	7264C-2K-2-180
8005	P27371	LRRYG1	MDB LT RR Y-AXIS	LT	800.80080 g	-	7/19/2003	OK	-1	Endevco	7264C-2K-2-180

page 3 of 3

# Digital and System Channel Report

2003-09-24 07:59:01

Name of Test 030924-1  
 enable Channel Short Name  
 Yes 6501 DIG6  
 System MTNDAU  
 Name of DAU DAU6  
 Data File DAT66501  
 Module Type KM3710 Controller  
 description

bit position	bit	short	long	description
MSB = bit 15	1	SHLET1	DRIVER SHOULDER CONTACT	1
bit 14	1	PEVET1	DRIVER PELVIS CONTACT	2
bit 13	1	SHLET4	PASSENGER SHOULDER CONTACT	3
bit 12	1	PEVET1	PASSENGER PELVIS CONTACT	4
bit 11	0			
bit 10	0			
bit 09	0			
bit 08	0			
bit 07	0			
bit 06	0			
bit 05	0			
bit 04	0			
bit 03	0			
bit 02	0			
bit 01	0			
LSB = bit 00	0			

# Digital and System Channel Report

2003-09-24 07:59:01

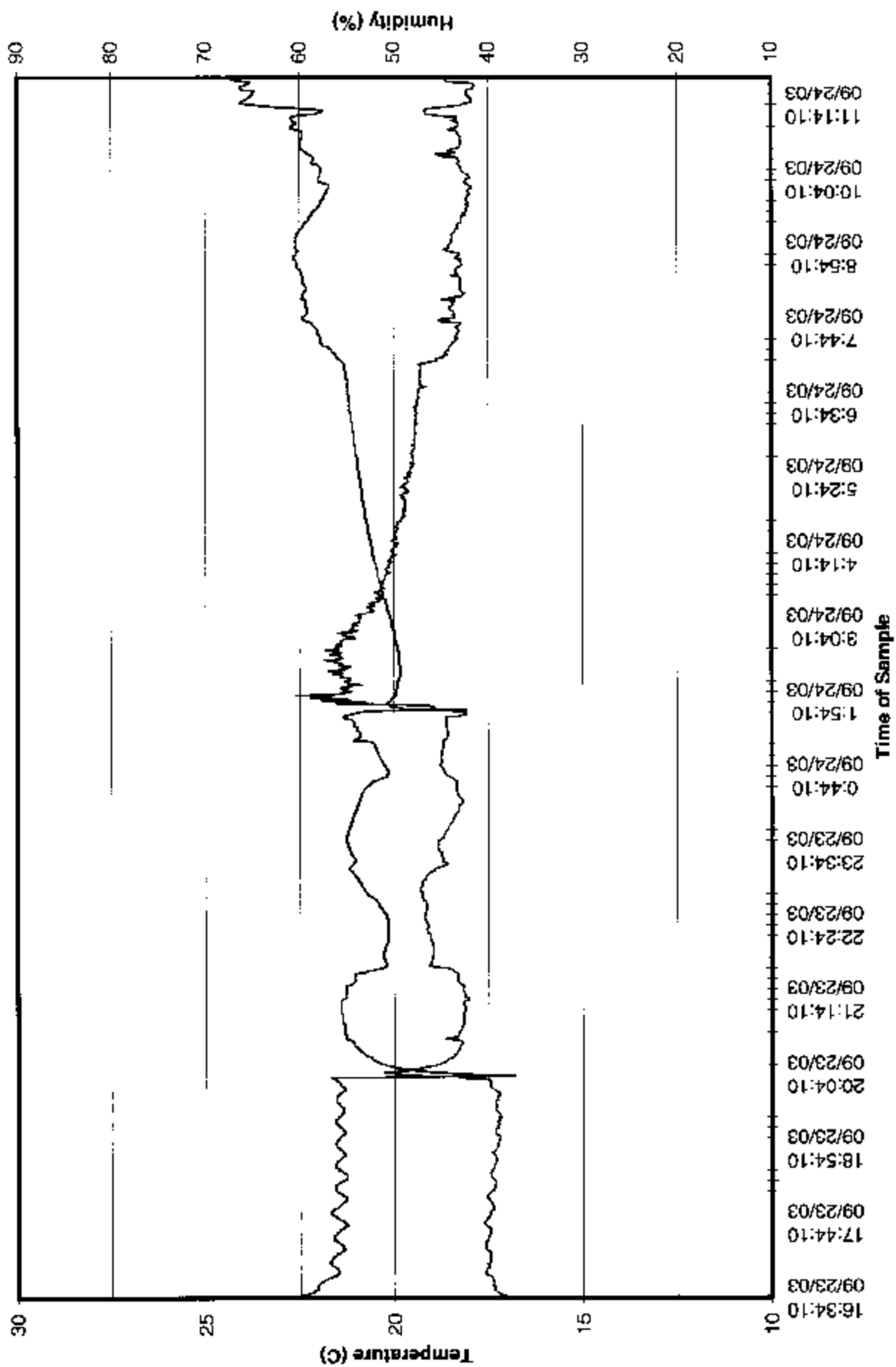
Name of Test		030924-1	System		MINTDAU	Name of DAU		DAU8	description	
enable Channel		Short Name	Type			Data File			Module Type	
Yes 8501		DIG8	dig0			DAT88501			KM3710 Controller	
bit position	bit	short	long		description					
MSB = bit 15	1	MDRR1	MDB RT SIDE CONTACT SWITCH		1					
bit 14	1	MDBL1	MDB LT SIDE CONTACT SWITCH		2					
bit 13	0									
bit 12	0									
bit 11	0									
bit 10	0									
bit 09	0									
bit 08	0									
bit 07	0									
bit 06	0									
bit 05	0									
bit 04	0									
bit 03	0									
bit 02	0									
bit 01	0									
LSB = bit 00	0									



NIITSA - 906n SID-LEFT IMP. CONFIG. w/REF ACCELS ICAL'D 9-9-03(DKS)

Dummy	906n	Type	THH/SID	Description	Name	Model	Manufacturer	Sens./mV/V/	Fullseat	Calcat	Pos Output	Flip
IEDXG	Head Accel X		7264-2000TZ	J26885	J26885	Endevco	Endevco	0.02361	g	2000	9/9/2003 Rwd	1
IEDYG	Head Accel Y		7264-2000TZ	J26864	J26864	Endevco	Endevco	0.02398	g	2000	9/9/2003 Lft	1
IEDZG	Head Accel Z		7264-2000TZ	J27950	J27950	Endevco	Endevco	0.02586	g	2000	9/9/2003 Up	1
IEDXR	Head Accel X Red		7264-2000TZ	J27271	J27271	Endevco	Endevco	0.03201	g	2000	9/9/2003 Rwd	1
IEDYR	Head Accel Y Red		7264-2000TZ	J27283	J27283	Endevco	Endevco	0.02344	g	2000	9/9/2003 Lt	1
IEDZR	Head Accel Z Red		7264-2000TZ	J26980	J26980	Endevco	Endevco	0.03088	g	2000	9/9/2003 Up	1
NEKXF	Neck Force X		1716A	1716A-1535-FX	1716A-1535-FX	Denton	Denton	0.000186952	N	8896.4	9/9/2003 Hd Fd,Cst Rr	1
NEKYF	Neck Force Y		1716A	1716A-1535-FY	1716A-1535-FY	Denton	Denton	0.000179612	N	8896.4	9/9/2003 Hd Lt,Cst Rt	0
NEKZF	Neck Force Z		1716A	1716A-1535-FZ	1716A-1535-FZ	Denton	Denton	0.000093678	N	13344.6	9/9/2003 Hd Up,Cst Dn	0
NEKXM	Neck Moment X		1716A	1716A-1535-MX	1716A-1535-MX	Denton	Denton	0.005785841	N	282.5	9/9/2003 Rt Ear to Rt Shld	1
NEKYM	Neck Moment Y		1716A	1716A-1535-MY	1716A-1535-MY	Denton	Denton	0.00568	N	282.5	9/9/2003 Chin to Siman	0
NEKZM	Neck Moment Z		1716A	1716A-1535-MZ	1716A-1535-MZ	Denton	Denton	0.008186195	N	282.5	9/9/2003 Chin to Lt Shld	0
LURYG	Left Upper Rib Y		7264C-2K-2-18	P27850	7264C-2K-2-18	Endevco	Endevco	0.01795	g	2000	9/9/2003 Rgt	0
LURYR	Left Upper Rib Red Y		7264C-2K-2-18	P25374	7264C-2K-2-18	Endevco	Endevco	0.02209	g	2000	9/9/2003 Rgt	0
LLRYG	Left Lower Rib Y		7264C-2K-2-18	P29211	7264C-2K-2-18	Endevco	Endevco	0.02096	g	2000	9/9/2003 Rgt	0
LLRYR	Left Lower Rib Red Y		7264C-2K-2-18	P25075	7264C-2K-2-18	Endevco	Endevco	0.01784	g	2000	9/9/2003 Rgt	0
T12YG	Lower Spine Y		7264C-2K-2-18	P21635	7264C-2K-2-18	Endevco	Endevco	0.01895	g	2000	9/9/2003 Lt	1
T12YR	Lower Spine Red Y		7264C-2K-2-18	P24564	7264C-2K-2-18	Endevco	Endevco	0.01896	g	2000	9/9/2003 Lt	1
PEVYG	Pelvis Accel Y		7264C-2K-2-18	P21652	7264C-2K-2-18	Endevco	Endevco	0.02221	g	2000	9/9/2003 Lt	1
PEVYR	Pelvis Accel Red Y		7264C-2K-2-18	P25318	7264C-2K-2-18	Endevco	Endevco	0.01926	g	2000	9/15/2003 Lt	1

# FMVSS 214 SIDE IMPACT PROTECTION C45101 / 030924-1





PLASCORE

**SIDE IMPACTOR BARRIER CERTIFICATION**

Date: May 13, 2003  
To: Transportation Research  
Ship & Rec Bldg 50  
10820 St. Route 347  
East Liberty, OH 43319-0367

**PURCHASE ORDER INFORMATION**


Customer P.O. Number: 23413  
Work Order Number: 16765  
Quantity: 01 piece

**CORE INFORMATION**

Core Type: PCGA-1/4-5.2-P-3003-T  
Measured Cell Size: 0.250 inches  
Measured Density: 5.2 pcf

Unit Number: 033A0303

This is to certify that the aluminum honeycomb core supplied, under the unit number provided, meets the crush requirements of 232 - 250 psi as per DWG# DSL-1285.

  
Quality Control Representative  
Karl D. Zwaanstra





PLAScore

Crush Data

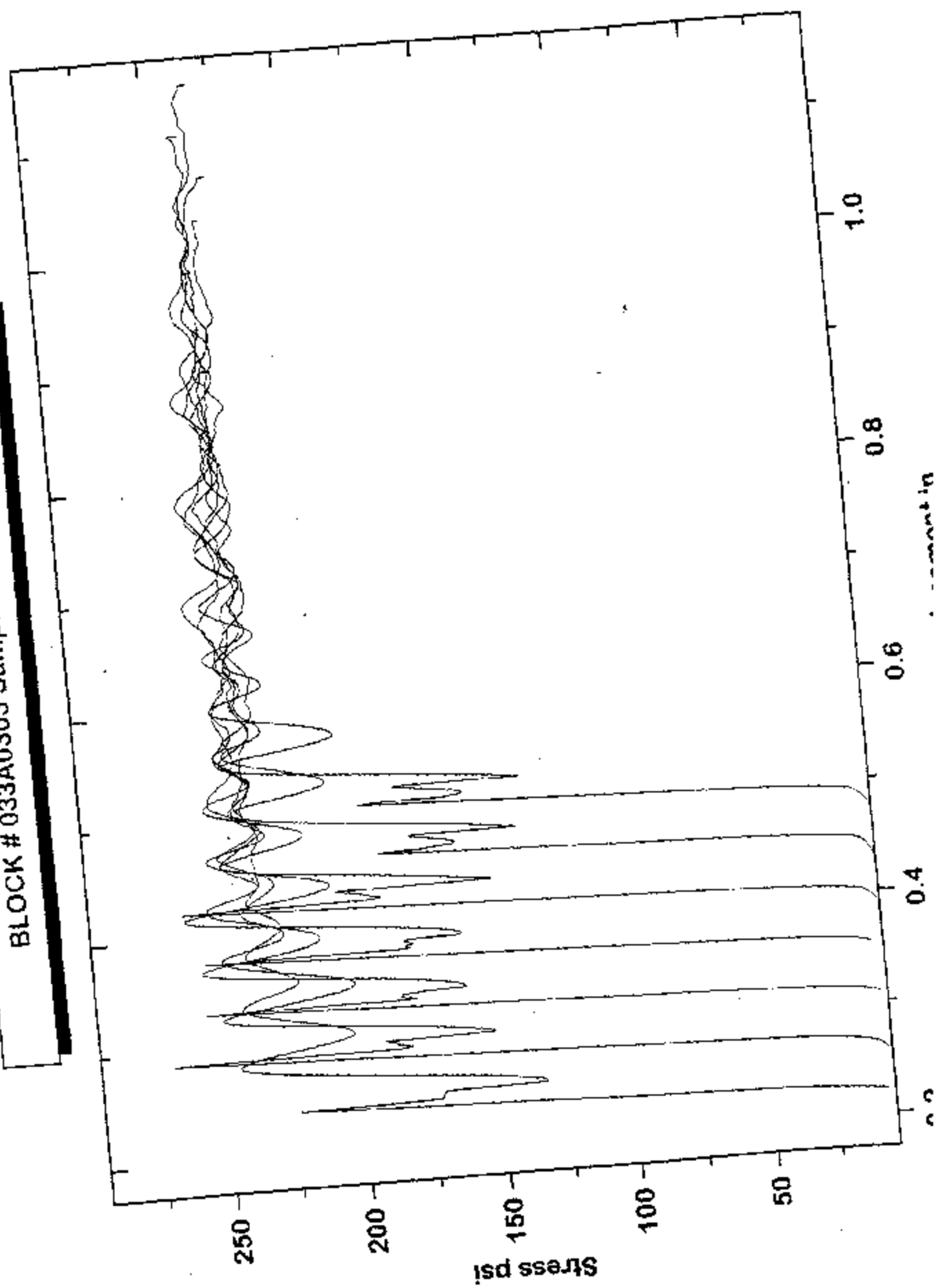
232 - 250 psi per DWG # DSL-1285

**Block Number:** 033A0303

<u>Specimen Number</u>	<u>Zone 1</u>	<u>Zone 2</u>	<u>Zone 3</u>
1	233.68	234.43	234.32
2	234.84	233.99	234.70
3	241.15	240.58	242.00
4	235.55	234.70	234.32
5	243.22	239.09	237.67
6	236.93	237.02	238.13
7	237.94	240.08	237.33



BLOCK # 033A0303 Sample ID: IN267010





**SIDE IMPACTOR BARRIER CERTIFICATION**

Date: May 13, 2003  
To: Transportation Research  
Ship & Rec Bldg 50  
10820 St. Route 347  
East Liberty, OH 43319-0367

**PURCHASE ORDER INFORMATION**

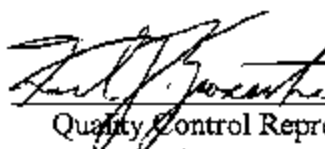
Customer P.O. Number: 23413  
Work Order Number: 16765  
Quantity: 01 piece


**CORE INFORMATION**

Core Type: PAMG-3/8-1.6-001-P-5052-T  
Measured Cell Size: 0.375 inches  
Measured Density: 1.6 pcf

Unit Number: 024A0403

This is to certify that the aluminum honeycomb core supplied, under the unit number provided, meets the crush requirements of 45 psi +/- 2.5 psi as per DWG# DSL-1285.

  
Quality Control Representative  
Karl D. Zwaanstra



Crush Data45 psi +/- 2.5 psi per DWG # DSL-1285**Block Number: 024A0403**

<u>Specimen Number</u>	<u>Zone 1</u>	<u>Zone 2</u>	<u>Zone 3</u>
1	44.04	43.50	44.74
2	47.22	47.11	46.31
3	45.50	45.66	45.35
4	45.47	46.98	46.34
5	47.25	46.24	45.37
6	44.54	44.24	43.37
7	44.12	43.94	42.84

BLOCK # 024A0403 Sample ID: IN227200

